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The MILITARY REVIEW disseminates modern military thought and current Army doctrine concerning command and staff procedures of the division and higher echelons and provides a forum for articles which stimulate military thinking. Authors, civilian and military alike, are encouraged to submit articles which will assist in the fulfillment of this mission.

## POLICY.

Unless otherwise indicated, the views expressed in the original articles in this magazine are those of the individual authors and not necessarily precisely those of the Department of the Army or the U. S. Army Command and General Staff College.

Editor.


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**This copy is not for sale. It is intended for more than one reader.**
**PLEASE READ IT AND PASS IT ALONG**

# LESS-THAN-TOTAL SOLUTIONS

George Fielding Eliot

THE most oppressive aspect of the cold war to many Americans—perhaps to the majority—is that no happy ending is even remotely in sight.

"Settling down for the long pull"—with the future eternally beclouded, as far as most of us can see, by the threat of nuclear devastation—is not attractive, much less inspiring of effort and sacrifice. No solution being visible, the net result is an attitude of weary endurance, accompanied by more or less definite attempts to forget the entire problem and try to pretend it isn't there at all. The editor of a large-circulation magazine said to me only the other day, "Try and find something to write about besides these Soviets. Our readers are tired of hearing about them."

This public weariness and frustration can be dangerous. It tends to paralyze—even to penalize—initiative in public servants. It is productive of timidity in policy, or in its execution. Under its influence nostrums flourish—and plausible purveyors of nostrums acquire a measure of acclaim. In the field of military policy a hypnotic glamour is lent to what might be called "hardware solutions." One citizen finds comfort in reading about the missiles we are going to have sometime that will enable us, he hopes, to wipe out Moscow by pushing a button. Another is pleased to be told that maybe Mr. Valerian Zorin in London is about to say a kind word about a plan to talk some more about doing away with some of the Soviet hardware, sometime.

Captions under front-page pictures of weird objects with fire spouting from their tails pile up statistics of range, speed, thrust, and destructive violence until the reader is hardly to be blamed for believing either that he is in imminent danger of being dissolved into radioactive particles, or that no government under any circumstances would dare to make war with such things loose in the world.

The citizen lost in this hardware jungle, unable to perceive any guiding gleam of light or any hopeful purpose in the policy of his government other than continued survival under continued threat, while piling up more hardware at his expense, is acquiring a massive indifference to details which he does not understand anyway.

Lacking any sense of motion, much less of progress toward a defined goal, the citizen settles into a mood of uncritical acceptance. This mood is colored only by the hope that the miracle will happen and the bad Soviets will go away or drop dead or something and leave him to the unclouded enjoyment of the peace and prosperity which, so he reads in the history books, his granddaddy knew in the good old days.

This means that more and more he tries to be satisfied with "hardware solutions" supposed to overawe the Kremlin and keep America safe from harm. By the same token he is less and less ready to demand, or to see the need for interim solutions directed to the scotching of limited or local enemy initiatives, or the pursuit

***We must formulate and announce a foreign policy ultimate objective and accept less-than-total solutions based on the designation of intermediate objectives to neutralize the threat of Russian global aggression***

of limited or local initiatives of our own.

The necessity for such interim and peripheral efforts cannot be made clear, much less fully acceptable, by arguing their individual merits. The citizen's answer is, "So we stop 'em in Korea and they break out in Indochina—so we stop 'em in Greece and they break out in Egypt—so what's the use?"

*It is only when less-than-total solutions are presented in direct and understandable relation to a total solution that they become both comprehensible and acceptable. The old military principle, known to all officers, that secondary and intermediate objectives must be chosen with the purpose of contributing to the ultimate objective is quite as applicable to over-all national policy in cold war as it is to the leading of an infantry division in hot war.*

### Morale Value

A division commander does well to see to it that not only his subordinate commanders but all ranks of the division understand the division's mission and also the bearing that intermediate or secondary missions (for which sacrifices must be required of the troops) have upon accomplishment of the final mission. Experience suggests that this practice, consistently adhered to and made SOP in all units down to platoons, contributes both to the successful accomplishment of on-the-way objectives and to the stimulation which such success exercises on the fighting spirit of the entire command.

Troop leading in the field at the divisional level is perhaps a simpler process than the political leadership of a great people through the weary struggle of a cold war, but surely the psychological problems bear an instructive relationship one to the other.

In both cases, those who are called on for sacrifices ought to understand what is being attempted—what is the ultimate objective. In both cases, accomplishing secondary objectives has a morale value directly related to how well their contribution to the main purpose is understood. Neither soldiers nor citizens respond zealously to calls upon them which seem without visible purpose—as any officer who served in Korea after the slowdown will bear witness.

If this reasoning is sound, then it appears that support of an effective and active military and foreign policy for the cold war by our citizens well may be dependent on two requirements:

**First, that an ultimate American objective in the struggle between the free world and the Communist states be set forth clearly, in such terms as shall make it understandable and acceptable to our people.**

**Second, that intermediate objectives contributing to the end purpose be chosen and pursued carefully, with a view to providing not only a substantial but a visible measure of progress toward the main goal.**

### Announce Policy

But can this be done? To start with, could the Government of the United States formulate and announce an ultimate objective which would be accepted by the majority of the people as representing victory in the cold war?

Let us try some more military thinking. According to the *British Field Service Regulations* (1935):

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*The ultimate national aim in war is to force the enemy to abandon the purpose for which he resorted to arms and to conclude peace on satisfactory terms . . . forcing him to realize that his aim is impossible of attainment or beyond the effort that he is prepared to make. . . . It will usually be necessary to defeat or neutralize the enemy's armed forces and so to deprive him of the power on which he chiefly relies to obtain a decision in his favor.*

Applying this sound doctrine to our present cold war problem, we are faced immediately with the fact that the armed forces of Soviet Russia and the industry which supports them constitute the power on which not only the Soviet leaders but the entire Communist conspiracy chiefly relies to obtain a decision in its favor. Neutralize these elements and no threat worth speaking of remains. The Red Chinese still might be able to attack their immediate neighbors, but with the Russians out of the aggression business this danger could be handled. Indeed, it would be unlikely to arise. Consider, for example, what would have been the position and prospects of the Red Chinese in the Korean war if no possibility of major nuclear war with the Soviet Union had exercised restraint upon the policy of the United States and her associates.

### Ultimate Objective

In the prosecution of the cold war, therefore, we may well consider that our ultimate objective is to eliminate the armed forces and arms industry of Soviet Russia as a factor in that war. This, of course, predicates their elimination from the cold war without transforming it into world war III—a war which means no worthwhile victory for anybody. The only remaining way to take out these factors is by neutralizing them—that is, by bringing about such changes in the structure, character, and policies of the Russian state as shall shift its ultimate national aim from global aggression to the legitimate interests of the Russian people, and bring its foreign and military policies within the scope of the United Nations charter.

This sounds like a very large order indeed. Readers may well ask what on earth a proposition of such colossal proportions is doing in an article devoted to less-than-total solutions. The answer is that seeking less-than-total solutions is the most effective means we have of contributing to such a change.

Furthermore, in the eyes of the American people and of our allies and friends, the known existence of such an objective on the part of the United States Government would give life, shape, and purpose to the secondary policies adopted in seeking less-than-total solutions.

Take Korea as an example again. President Harry S. Truman, with his innate grasp of political reality, made it clear to all Americans from the very start that if the United States failed to resist this armed aggression with armed force, the whole structure of collective security against expanding Communist power would collapse. This ultimate purpose being understood and accepted, the American people were willing to make sacrifices to achieve the secondary purpose of defending the Korean Republic.

But although the Truman objective was real enough, it was negative and defensive in character. Collective security we must have if Communist aggression is to be resisted; but beyond security and resistance against aggression lies the positive need for putting an end to aggression by drying it up at its source.

Its principal source and nourishment is the armed power of Soviet Russia.

*Can we then calmly announce to all the world—including the Kremlin—that our ultimate objective is to remove that*

*power from Communist hands and lodge it in the hands of the Russian people or at least of a government decently representative of their interests?*

Certainly. Why not?

**Can any objective very much different from this be set out as satisfying our hopes and aspirations? We certainly do not want to fight a nuclear war, nor do we want the indefinite continuation of the burdens of the cold war, nor can we place the smallest faith in any agreement which depends, to any substantial degree, on Communist good faith. What remains, then, save the elimination, not of the Russian nation or people, but of their Communist governors?**

### Historical Examples

This distinction between a people and their rulers has the sanction of history. In the last three great wars fought by coalitions of free states against a centralized totalitarian enemy, the shape of victory came to be identified with the elimination of the totalitarian rulers and the establishment in the hostile states of governments with which it was possible to live.

From 1803 to Waterloo the British people held to one immovable purpose—"No peace with Napoleon." As victory dawned in World War I, public opinion in the Allied countries was united on Woodrow Wilson's demand that the German political system must be changed by "the destruction of every arbitrary power anywhere that can separately, secretly, and of its own single choice disturb the peace of the world." This was one of the primary causes of the revolution in Germany and the abdication of the Kaiser. In World War II the de-Nazification of Germany and the elimination of militarist influences in Japan were primary policies of the victors.

Historically-minded readers surely will point out that both Napoleon and Hitler fought to the bitter end because they knew that their opponents would never make peace with them, and that in 1918 there were many German officers who urged the Kaiser to go down fighting rather than abdicate. Might not the announcement of such an American objective as suggested here have a like effect on the Communist rulers of Russia? And if they see that we are making progress toward our goal by the accomplishment of intermediate objectives, may they not decide on total war as representing the lesser risk to their personal safety?

Perhaps. No policy is without risk in a world which contains Communist governments armed with nuclear weapons. There is no way for us to evade policies involving risks; we have merely a choice of risks. The most serious risk of all is to sit still, hope for the best, and continue to dissipate our substance and our moral fiber in trying to preserve a defensive balance that we hope will not be challenged. Why, indeed, should we assume that the enemy, confronted with an active policy which presents him with risks, will react by suicidal violence? Why is it not even more likely that he will retreat? That is what he has done before; that, indeed, is characteristic of all Russian external adventures.

### External Pressure

Further, we see that changes—very notable changes—are taking place in the Communist powerplant. New hands are seizing the controls. Some of these hands —perhaps the strongest—belong to soldiers such as the eminently hardheaded and practical Georgi Zhukov. In part, at least, these changes are due to external pressure to which we have contributed.

Nowhere during the past two years has there been a notable Communist success, an instance of victorious Communist advance. The tide has been running the other way. The Middle Eastern adventure has —so far—produced no solid results. The

Hungarian massacre has revealed not only the utter dependence of Communist rule on brute force, but has demonstrated the utter undependability of 60 satellite divisions heretofore counted in the listing of Communist armed might. The de-Stalinization campaign of Khrushchev and Company has eroded the political core of the Communist Party in Russia and the satellites, and compelled the politicians of the Khrushchev faction to sacrifice their only means of internal self-defense—the secret police—in order to purchase the support of the military leaders against the Stalinists. If ever there was a time for continuation of the pressures that have helped to produce these results—and for their application in a considered and increasingly active campaign tailored to a specific objective—that time is now.

### Define Goal

But we cannot hope to pursue such an active policy successfully unless we can give it form and substance which is not merely understandable, but inspiring of the effort and sacrifice essential to success; hence the necessity for the target to be defined.

Such action will, of course, require a considerable measure of intestinal fortitude at the top political level. But when has timidity ever gotten us anywhere with Communists, or Nazis, or Fascists, or any other breed of totalitarian bully? Let us take heart from the example set by a statesman who is much closer to the possible firing line—Chancellor Konrad Adenauer of the Federal Republic of West Germany. C. L. Sulzberger of the *New York Times* writes:

*The Adenauer policy is to reconstruct a modern version of Charlemagne's nonnationality Europe between the Channel and the Elbe, to tie it closely to a 20th century Africa, and, above all, to link it to American power. He is confident the sheer weight of such an amalgamation would accelerate disruption of the Communist empire, unifying Germany and encouraging the Russians eastward.*

This "ultimate aim"—which the chancellor has progressively made clear to his own people—is exactly the same in substance as that suggested here as satisfying our own requirements. "Disruption of the Communist empire, unifying Germany and encouraging the Russians eastward" is the equivalent of the abandonment by the leaders of Russia of Communist world-power objectives. To publicize a policy which thus pronounces the doom of Communist aspirations is an act of notable courage on the part of the 82-year-old chancellor, with Soviet armies actually on his frontiers and his entire country within the radius of action of Soviet aircraft. He has, nevertheless, felt it needful to tell the West Germans where he hopes to lead them, in order to obtain from them the interim sacrifices needed for step-by-step progress toward the ultimate objective: rearmament, membership in NATO, economic unity with other West European nations, all involving sacrifice of some kind, all involving risk of one type or another. Nor has he been deterred from leading the Germans along this chosen path by the most direct and brutal threats emanating from the Kremlin.

Need American statesmen, then, be deterred from formulating and publicly stating our own ultimate aim by fears of Soviet reactions? Or by reluctance to make any statement which might sound "aggressive" or be criticized as "warmongering"?

It is the unhappy fact that we have wandered into the hardware jungle because first of all we lost our way in a moral fog. We affirm that we are a peaceful people, seeking our ends by peaceful means. We affirm that those who seek their ends by force are "aggressors" which means bad and unprincipled people. From this synthesis we have derived the dis-

astrous conclusion that the use of force in the solution of international difficulties large and small is *of itself* bad and unprincipled. From this conclusion there flows a spate of lesser conclusions, paralyzant of initiative and protective of temporizers. We must act in defense of our interests only through the United Nations. We must speak of our aspirations only by coupling them with the statement that they are to be attained by "peaceful means." We must proclaim again and again that we will never strike the first blow. We must take sides against our closest and most faithful allies if they violate these sacred "principles."

### Unrealistic Moralizing

Much of this unrealistic moralizing is born of unrealized hopes. We set ourselves an objective of peace through world organization. War we renounced, replacing it by the collective action of "peace-loving" peoples through the instrumentality of the United Nations. We are not able to bring ourselves to recognize that this preliminary chore may have to be accomplished by methods which might become inadmissible once it is accomplished, even when it is very clear that this objective can be attained only if, as, and when the weight of Russian power is shifted from opposition to cooperation. We cannot quite see that we must win the cold war—that is, eliminate Communist control of the Russian armaments system—as the foundation of our edifice of peace and justice under law: just as our Western ancestors had to use very forceful (and illegal) methods of exterminating gangs of bandits as the essential prerequisite to the functioning of a law-controlled social order.

A rethinking and restatement of our cold war objective might well clear away much of this moral fog. We shall acquire a clearer view also of the true nature of international morality once we have said out loud that our duty, imposed upon us by our possession of power as well as by history, is to use our power effectively to accomplish a definite purpose which, in turn, will enable free peoples to join together unafraid to build that better world which is the lodestone of our own hopes.

Interim decisions and actions leading to the accomplishment of our objective then will be seen, not as disparate items each to be examined on its own merits, but in relation to their contribution to the final goal. If anyone wants to say that I am arguing that the end justifies the means, let him make the most of it. I suggest as a more applicable aphorism that of Benjamin Whichcote: "Let the intermediate ends be warrantable, and the ultimate end worthy."

### Arms Traffic

Consider, for example, our attitude toward the current Soviet gambit of shipping arms to various countries in the Middle East. There is hardly even a pretense that these arms are needed by the recipients for legitimate purposes of self-defense. They are sent cynically for the express purpose of stirring up trouble for the free world, without involving any serious risk to Soviet vital interests. In complete command as we are (with our friends) of the sea and air approaches to the Middle East, which must be used for any Soviet arms shipments to that area, there is no earthly reason why we should suffer this arms traffic to continue. Yet we do not cry *halt*—on the theory that it would be an "act of war" or an "act of aggression" to do so.

The moral confusion of this viewpoint truly is remarkable. We persuade ourselves that it would be wrong for us to put a stop to a criminal traffic which has as its purpose the furnishing of high-powered weapons to ill-balanced and explosive peoples who will be encouraged thereby to attack their neighbors.

It does not occur to us that, having the

unchallengeable power to stop it, it is, in fact, wrong for us to refuse to use that power on the specious plea that we would be violating "laws" which our opponents disregard.

It does not occur to us that some of the blood which is shed and will be shed in consequence adheres to our own hands. Nor do we seem to realize that eventually, if this traffic continues, we are quite likely to have an explosion in the Middle East which we shall be compelled to deal with forcibly, at considerable cost in blood and treasure—an explosion which may require the attention of half-a-dozen American divisions and the needed air and naval forces to support them. On the other hand, timely action could have pinched off the fuze at the cost of a little steaming fuel and aviation gas, and perhaps a few five-inch shells and a handful of rockets.

The moral justification for such action could, of course, be derived only from a plainly drawn distinction between the Communist conspirators now in power in Russia, and a legitimate Russian Government which accepted and practiced a due respect for the comity of nations. It is in making such a distinction, and openly addressing ourselves to the abatement of the danger thus defined—a danger arising from criminal purposes and utter disregard of law or morality—that we may find the basis for our ultimate aim and for the intermediate steps necessary to attain it.

### Hardware Jungle

The practical effect of such a clarification of American policy and purpose surely would be helpful in the execution of policy and the accomplishment of purpose. We cannot get out of the hardware jungle as long as we require our Military Establishment to be vaguely ready for "anything," while in actuality establishing only one clearly defined mission—that of deterring the Soviets from resorting to total nuclear war.

The past 10 years' experience in attempting to define roles and missions of the services has demonstrated not that agreement is impossible, but that agreement is impossible in the absence of a defined national purpose.

When political initiative is abandoned to the enemy, military officers cannot know when, where, under what circumstances, and at what stage of weapons development they may have to fight. The result is that each service tries to collect all the hardware of all types and all the trained manpower it can lay hands on, in order to be as ready as it can for "anything." Dollars, however, are definite; economic objectives are understood and can be measured. It is becoming increasingly difficult to defend, dollarwise, indefinite military requirements as against their definite drain on the national economy. The net result is the gradual whittling away of readiness for missions other than those associated with the nuclear deterrent.

### Attain Objectives

A defined and accepted national aim in the cold war would immediately, and as a matter of course, produce directives and plans tailored toward its successful accomplishment. From these would be promptly developed projects for attaining less-than-total objectives contributing to the final aim. Thereafter, both the character and the cost of the military means required for these purposes would become defensible.

It will not, of course, be enough to define our ultimate objective and make plans to accomplish it. The next and vital step in this process is the successful *attainment* of intermediate objectives clearly contributive to it. The clouds of weariness and frustration must be penetrated and dissolved by the sunshine of victory even though it is less-than-total. The electric effect of far-from-total victories upon weariness, frustration, even despair, has

been demonstrated repeatedly to be a sovereign specific for such ills. To pick an example at random, let us recall the effect on the people of the Northern states in the dark winter of 1861-62 of two widely separated events, the fall of Forts Henry and Donelson and the capture of Roanoke Island.

### Conclusion

Definition of purpose, successful progress toward its achievement, will create an atmosphere far more invigorating than that of the winter of our present discontent. In such an atmosphere we can see, think, and react more clearly and effectively. We can make wise choice of tools and means for further progress. *We can pay the cost both in treasure and sacrifice, encouraged by the growing realization that we are off dead center, that we are in motion toward an end chosen by ourselves and not by our foes.* We shall be fortified in our minds by visible progress, and in our hearts by the dawning realization that in putting an end to fear and blackmail we pursue a purpose worthy of our free past and of the power that freedom has enabled us to accumulate—to the end that freedom should not perish from the earth.

*For a discussion of the military aspects of this problem, see the article beginning on page 57 by Colonel Hewitt D. Adams, "The Challenge to Military Thinking Today."—Editor.*

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**The deterrence of war in this age of high-yield weapons is the greatest challenge that this Nation has ever faced. It is no longer a task that can be entrusted solely to the soldier, the statesman, or the diplomat, because the deterrence of conflict rests on the concerted efforts of all Americans. If we are to deter the great catastrophe of another world conflict, we can do so only by the unified efforts of all of us—each contributing according to his station. Only by merging all of our strength—military, economic, political, and moral—in harmonious and effective combination, can we ensure the future of America and the peace of the world. Militarily this integrated effort requires not one single form of military force, but a tridimensional balance of forces applicable to objectives on land, at sea, and in the air. It demands a political-military strategy flexibly adjusted to the needs of unforeseen situations, not geared to any single weapons system or a single concept of future war. In short it should embrace all reasonable measures to prevent general and local war, and at the same time contain the potentiality of waging any war, large or small, in such a way as to achieve our national objectives. It is in such an integrated national strategy that the Army prepares itself to play its essential part.**

*General Maxwell D. Taylor*

# INTRODUCTION TO THE ARMORED DIVISION (ROCAD)

Lieutenant Colonel Duane S. Cason, *Armor*
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TO THOSE familiar with the 17R division organization, a superficial examination of the organizational chart in Figure 1 may lead to the erroneous conclusion that little change has occurred in the Armored Division (ROCAD). Such a conclusion is valid only with respect to the number of major control headquarters and combat battalions. In most instances, greatly improved capabilities are afforded by changes and new equipment within battalion or company size units. The sum of these changes has provided a more efficacious division command and control system, greater flexibility, combat power, and range of operations than heretofore available.

**Combat, Combat Support, Fire Support**

As indicated in Figure 1, certain completely new units have been provided in the new division, in addition to effecting significant reorganization in existing units.

The signal battalion organization provided replaces the former armored signal company. Composed of a headquarters, headquarters and service company, a combat operations company, and a command operations company, this battalion provides a more flexible and functional organization, capable of installing and maintaining a division area communications system. This system, to be discussed in more detail later, furnishes the ROCAD commander with improved means of exercising command and control of the far-flung operations of the armored division on the atomic battlefield.

The aviation company consolidates all divisional aircraft and aviation personnel into one unit. Within this company, personnel and aircraft are grouped functionally to furnish division staff aviation representation and service; aviation direct support to major control headquarters; and general support and tactical transportation for the division as a whole. This organization not only provides greater flexibility of Army aviation employment within the division, but results in improved maintenance and correspondingly higher availability of aircraft, together with centralized training and utilization of critical skills. The total number of aircraft in the division has been almost doubled.

The administrative services company serves as a carrier unit for those elements of the division administrative special staff which provide personnel and administrative support and normally operate from the division headquarters rear echelon. The company also furnishes replacement support for the division, supplanting the former replacement company.

***The Armored Division (ROCAD) is a major specialized combat force of self-contained, readily deployed, and completely mobile combined arms and services designed to dominate a dispersed and fluid battle area***

The field artillery general support (composite) battalion is a most important addition to the armored division's combat power, since it is here that the division's atomic punch is located. This battalion replaces the armored field artillery battalion, 155-mm howitzer self-propelled. In addition to its headquarters and headquarters battery and its service battery, this battalion consists of two batteries of 155-mm howitzers, and a battery each of 8-inch howitzers and 762-mm (*Honest John*) rocket launchers, with all elements being self-propelled. The latter weapon is the dual capability atomic-nonatomic delivery system.

In addition to the units replaced by the new organizations outlined, it is apparent that the antiaircraft artillery (AAA) automatic weapons (AW) battalion has been eliminated from the division. This is in keeping with the principle of pooling at higher echelons those means not habitually required. Thus it is contemplated that AAA battalions of appropriate type will be available at corps level and attached to the armored division as required by the situation. This will be in addition to the air defense afforded the division by the new area air defense systems to be phased into the corps and field army organizations.

### Internal Reorganization

Turning next to the reorganization which has been effected in existing units of the division, it is found that new internal organization and up-to-date equipment has been provided which will result in over-all improvements in operating efficiency.

As noted in considering the administrative services company, division administrative special staff sections are now part of that unit, rather than division headquarters and headquarters company. This streamlining of the latter unit simplifies the echelonment of the division headquarters in combat and provides for a more manageable organization.

The headquarters and headquarters company, combat command, has been strengthened by the provision of a communication platoon to handle the increased communication requirement of the combat command and provide additional means. A scout section also is provided to furnish valuable assistance in reconnoitering routes and new locations for the displacement of the command post and to provide improved local security for the headquarters.

Internal changes in both tank and armored infantry battalions are similar. The former battalion reconnaissance platoon has been replaced by a battalion scout platoon mounted entirely in ¼-ton trucks, equipped with vehicle-mounted machineguns and radios. The elimination of the light tank will simplify the over-all maintenance requirements of the battalion, while the scout platoon will provide a highly mobile element to assist the battalion commander in the movement of the battalion by reconnoitering and locating suitable routes, obstacles, and bypasses. Facilities for command and control of both type battalions have been enhanced by the provision of a battalion communication platoon with improved signal com-

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*Lieutenant Colonel Duane S. Cason received his commission in 1941. During World War II he served in China with both regular and guerrilla Nationalist forces. He was assigned as China Theater Liaison Officer at Supreme Headquarters, Chinese Nationalist Army, in Nanking, and in the G3 Section, Headquarters, China Theater, until returning to the United States in 1946. After graduating from the General Line School, Naval War College, and the Advanced Course of The Armored School, he was with the Logistics Division, General Staff, European Command, during 1948-51. Upon graduation from the Regular Course of the USA Command and General Staff College in 1954, he was assigned to the faculty where he served in the Instructional and Research and Development Divisions. He now is a student at the Air War College, Maxwell Air Force Base, Alabama.*

munication means. A greater logistical support capability is provided each type battalion by the substitution of 5-ton cargo trucks for the bulk of the 2½-ton trucks formerly in the battalion support platoon. The rapid handling of bulk fuel and refueling of tracked vehicles is facilitated by the inclusion of 1,200-gallon gasoline tank trucks in each type battalion. A resultant reduction in the quantity of five-gallon cans formerly required thus is achieved.

Within the tank battalion specifically, the tank strength of the battalion headquarters, headquarters and service company, has been increased from two to four. This provides additional means of suitable battlefield mobility for the battalion commander, staff, artillery liaison officer, and forward air controller operating with the battalion. These headquarters tanks are equipped with appropriate radios for air-ground communications with tactical air force elements and for operation of necessary command and fire request nets. The four tank companies of the battalion continue to be organized on the basis of three tank platoons of five tanks each, but four-man crews, rather than five-man, are provided for the latest types of 90-mm gun tank. A security section is provided in company headquarters which may be a source of tank crew replacements.

The four rifle companies of the armored infantry battalion have undergone no major changes of equipment or organization. They continue to be composed of three rifle platoons, each consisting of three 12-man squads and a machinegun squad and a three-squad, 81-mm mortar platoon.

**ARMORED DIVISION ORGANIZATION (ROCAD)**

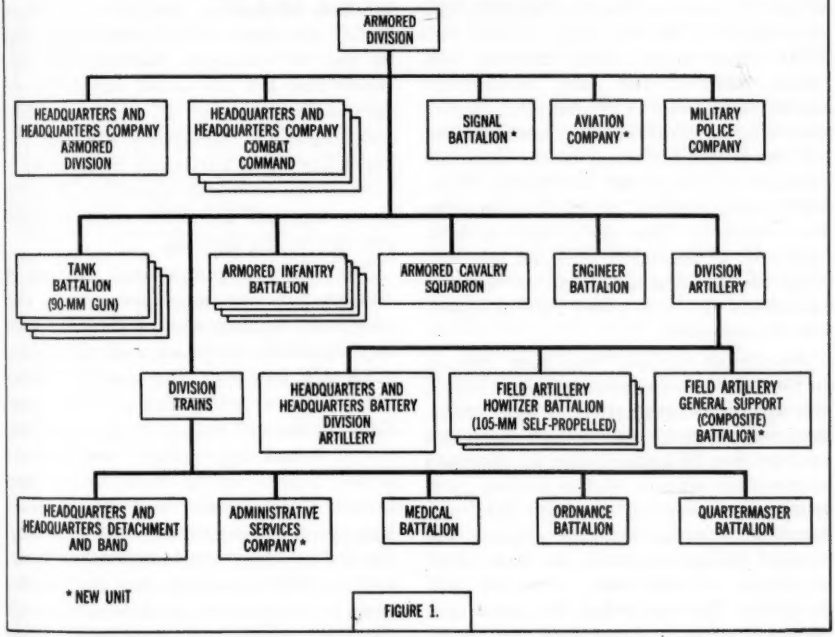


FIGURE 1.

### Other Changes

Internal reorganization of the former reconnaissance battalion has been extensive. In addition, this unit has regained its traditional designation as a *squadron* with subordinate elements redesignated as *troops*. Within the headquarters, headquarters and service troop, armored cavalry squadron, a reconnaissance and surveillance platoon provides new and valuable means for the distant detection of enemy troop movements, locations, and dispositions under conditions of poor visibility. These means include airborne television, infrared, and radar surveillance equipment, as well as ground photographic and radar capabilities. The reconnaissance and surveillance element of the squadron normally is supported by aircraft from appropriate elements of the division aviation company. The aerial photographic capability of this latter unit also can augment the reconnaissance and surveillance operations of the armored cavalry squadron as necessary.

Significant changes have been effected in the four armored cavalry troops within the squadron. Integration of light tanks, armored riflemen, scouts, and close fire support now is accomplished at the troop rather than platoon level as before. Each troop is composed of two light tank platoons, an armored infantry platoon, and a scout platoon to which has been added a section of two heavy mortars, self-propelled. The troop has 12 tanks each equipped with a 76-mm gun, for an increase of 20 light tanks in the squadron, or a total of 52. This organization affords the troop commander considerable flexibility in the organization of small combined arms teams for specific missions. The additional light tanks and inclusion of heavy mortars considerably increase the combat capability of the squadron for the execution of its roles of reconnaissance, counter-reconnaissance, and security operations for the division, and enhance its capabilities for extensive battle area surveillance.

Among new capabilities given the engineer battalion are a total of 12 tanks 90-mm gun with bulldozer attachments, allocated three per engineer company, and an increase in the bridge company from two to three bridge platoons. The bridge company now is equipped with three units of *M4T6* bridge consisting of aluminum superstructure and pneumatic floats. This bridging provides approximately 450 feet of Class 50 floating bridge or six 50-ton rafts. Components of this bridge also may be used for short-gap spanning. The battalion also has the added capability for field maintenance of all engineer equipment organic to the armored division. This capability is of particular importance in view of the increased quantities of power generating sets and other engineer matériel now in the division.

The major organizational changes in division artillery have been dealt with previously in discussion of the field artillery composite battalion and the deleted AAA AW battalion. The howitzer battalions, 105-mm self-propelled, are essentially unchanged except for the availability of 5-ton cargo trucks and gasoline tanker trucks within their service batteries. Headquarters and headquarters battery, division artillery, has been augmented in signal communication means, and in staff personnel for division fire support coordination operations. Although the total number of air control teams remains at four, these teams have been redistributed, only one now remaining in division artillery headquarters, while the other three have been allocated on the basis of one per light artillery battalion. Except for the forward air controller who must be furnished by the supporting tactical air force, these teams are complete with radios, vehicles, and personnel necessary for tactical air direction operations within the division.

**Division Trains and Service Support**

The armored division trains concept has been carried forward to the ROCAD division. The division trains commander continues to exercise *tactical* command and control of all units attached to division trains, while their *technical* operations are supervised by the appropriate division special staff officer.

The division trains headquarters and band have been combined in a single unit to reduce overhead. The band has the additional function of a security section. When not engaged in its primary mission of furnishing music, it may be used for providing local security, prisoner of war escorts, supply handlers, litter bearers, and messengers. It also may perform route reconnaissance and furnish road guides to new trains areas.

Although frequently located in the division trains area for over-all security and movement control, the administrative services company performs its functions directly under division headquarters control, since it forms not only the division headquarters rear echelon, but also establishes the division administrative center when the division is organized for combat. This latter activity is composed of all unit personnel sections of divisional units under the supervision of the adjutant general.

The medical battalion has been subjected to a major reorganization. It is now composed of a headquarters and headquarters detachment, an ambulance company, and a clearing company. This organization provides four ambulance platoons and four clearing platoons, each of the latter capable of operating a division clearing station with a capacity of 80 patients. Augmentation of the evacuation capability of this battalion can be provided either by use of helicopters from the division aviation company or by field army helicopter ambulance units.

The redesigned ordnance battalion provides a more flexible unit for support of all elements of the division. It has a headquarters and rear support company and three forward support companies. Each forward support company is capable of furnishing ordnance field maintenance support to all equipment of units which might be attached to a combat command and approximately one-third of the ordnance equipment of division troops normally operating forward in the division formation. The headquarters and rear support company, in addition to furnishing command, tactical, and administrative supervision and support for the battalion, provides ordnance service support to all elements of the division as required. It also serves as a supply source for the remainder of the battalion and supplements the capabilities of the forward support units. This assistance to the forward support companies is accomplished by a cellular augmentation platoon of seven mechanical maintenance sections and four artillery maintenance sections which may be attached to forward support companies in varying combinations, dependent upon the equipment density to be supported.

The basic organization of the quartermaster battalion remains essentially unchanged. Increased capabilities have been provided this unit for the critical areas of Class III supply and cargo lift. The Class III section, supply company, is equipped with 18 tractor/trailer gasoline tankers of 5,000-gallon capacity each, as well as five each 1,200-gallon trucks of the same type found in the combat units of the division. The number of five-gallon cans now carried by this section has been reduced to approximately 3,000. With its tanker trucks and cans this unit now can transport over 111,000 gallons of gasoline. The three truck platoons of the supply company continue to be equipped with the 2½-ton cargo truck. However, the truck platoons of the field service company now have a total of forty-eight 5-ton cargo trucks. Both type truck platoons have been

provided additional driver personnel. These changes in equipment and personnel have greatly increased the ability of the quartermaster battalion to operate on an around-the-clock basis and provide needed increased cargo capacity.

### Division Communication System

The successful employment of the armored division is determined by its ability to *move, shoot,* and *communicate.* With this in mind, and in consideration of the extensive frontages and great depth of formations in which the armored division will be employed in atomic warfare, an area communication system has been designed for the new division. This system is established and operated by the signal battalion. Figure 2 depicts schematically how the area communication system might be established in a hypothetical situation.

The forward signal centers generally located in the vicinity of combat command headquarters are established and operated by the combat operations company. These signal centers not only have radio relay and telephone carrier terminal stations tied into the area communication system, but operate a frequency modulation (FM) radio/wire integration station to connect mobile FM radios into the system. Similar facilities are established by the command operations company for the division command post, division trains headquarters, and the division headquarters rear echelon. The command operations company also installs and operates the necessary facilities to connect the division artillery headquarters into the area communication system. To illustrate the flexibility of this system, assume the commanding officer, Combat Command A, had occasion to speak directly with the commanding officer, division trains. The commanding officer, Combat Command A, would call the FM radio station at the signal center in the vicinity of his command post. At this station his transmission would be routed over the radio relay system to the appropriate signal center in the division trains area, and then to the division trains command post by either telephone or radio.

It is emphasized that the division area communication system is an *additional* system designed to ensure control of operations on the highly dispersed atomic battlefield. All units of the division continue to utilize unit radios and other communication means for command and control of their subordinate elements.

Since radio remains the primary means of communications within the armored division, the division normally will establish and operate the following seven radio nets:

*Division command net (radio-teletype)*
*Division command net (FM voice)*
*Division intelligence net (radio-teletype)*
*Division logistical net (radio-teletype)*
*Division headquarters rear echelon net (radio-teletype)*
*Air request net (amplitude modulation)*
*Division warning net (amplitude modulation)*

The radio nets of major subordinate control headquarters are designed to tie into all appropriate division nets and appropriate equipment is provided.

The division area communications system, the numerous division radio nets, and the high density of radio communication equipment affords an over-all division communication capability of extensive coverage and great flexibility. As a result all elements of the armored division are able to respond rapidly to the will of the commander and the rapid developments of the future battlefield.

### Roles of the Armored Division

The Army must be prepared to cope with the entire range of possible military

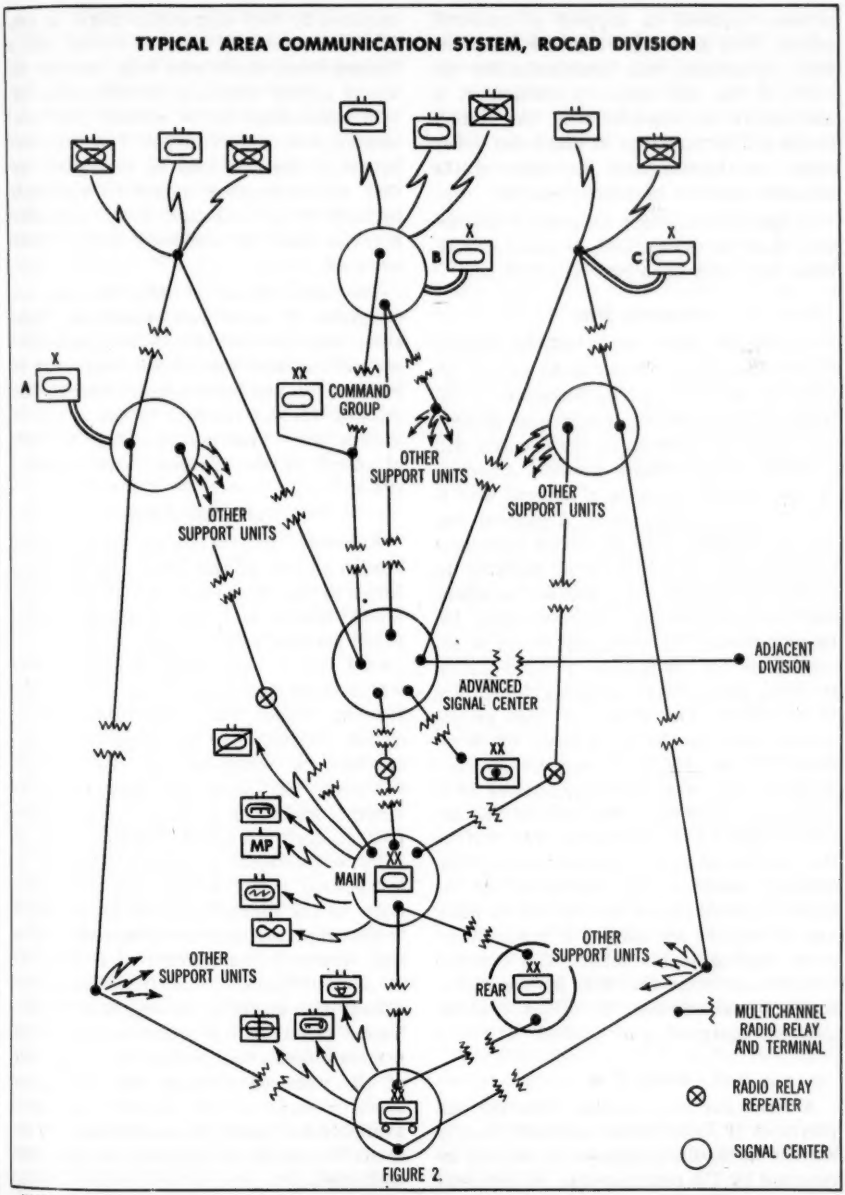
TYPICAL AREA COMMUNICATION SYSTEM, ROCAD DIVISION
X
A
B
C
XX
COMMAND GROUP
OTHER SUPPORT UNITS
OTHER SUPPORT UNITS
OTHER SUPPORT UNITS
ADJACENT DIVISION
ADVANCED SIGNAL CENTER
MP
MAIN
REAR
OTHER SUPPORT UNITS
OTHER SUPPORT UNITS
MULTICHANNEL RADIO RELAY AND TERMINAL
RADIO RELAY REPEATER
SIGNAL CENTER

FIGURE 2.

actions required in support of national policy. With an insight into the organization, equipment, and communication aspects of the new armored division, it is appropriate to consider next the nature of the military actions in which the Army might participate, and the roles of the armored division pertinent thereto.

In general, military actions of the future may be categorized as general war, local war, and situations short of war.

### *General War*

A general war will involve United States and enemy forces in an all-out effort, to include total mobilization of resources. The military objective of general war is the destruction of the enemy's will to resist. The ultimate national objective of the United States in a general war is victory and a viable peace. A general war may be initiated with an atomic onslaught by the enemy with little or no warning. In a general atomic war, nuclear weapons may be used on an unlimited scale between nations. This condition would be accompanied by immediate ground action in those areas where opposing forces are in proximity. The results of such an exchange may be the ascendancy or dominance by one side, or it may develop into a lesser role of atomic employment or a temporary stalemate. The role of the armored division in a general war will be the conduct of mobile, decisive ground operations aimed at the destruction of the enemy's armed forces and his will to fight, and the seizure and control of critical land areas leading to his defeat. The armored division performs this role by the execution of those missions for which it is organized, equipped, and trained.

### *Local War*

A local war may develop from the employment of Army forces to assist friendly nations in repelling aggression as may be required by US commitments. A local war initiated by such aggression might be confined to relatively limited forces and a limited area. Such war may involve the use of atomic weapons, possibly with certain restrictions as to weapon yield and location and type of target. The scope and extent of the war may be restricted further by moderating influences applicable to both sides, although these restraints may be removed suddenly and without warning.

The capabilities of the division are adaptable to local war operations. However, they are subject to the particular restrictions and limitations that may be imposed on the armored division by the limiting factors relevant to the nature of such a war. This may preclude the employment of the division with optimum effect.

### *Deterrent Force*

Armored divisions now are deployed abroad as part of the worldwide deterrent forces of the US Army. Periods of serious world tension and deteriorating international political relationships must be anticipated as a continuing situation with which these deployed forces will be confronted. Under such conditions the armored division may be employed in operations in extension of the national interests, but short of open hostilities against organized military forces. Examples of such operations include show of force, enforcement of truce conditions, international police action, and occupation duty. In the conduct of such operations it is contemplated that the armored division will operate as an element of a US joint or combined allied force. Under such conditions the mobility, power, and psychological effect of the presence of a large armored formation makes the ideal role of the armored division that of operational reserve of the higher command, available for immediate employment in the event the situation degenerates into open hostilities.

### Operational Environment

The tactics and techniques employed by the armored division will vary necessarily with the operational environment within which the division is employed. The major elements of the operational environment are considered to be the scale of use of atomic weapons, enemy situation, geographic conditions, and the nature and structure of the force of which the armored division will be a component.

Atomic warfare may involve a wide range of conditions, dependent upon the number and yields of weapons available to and employed by both sides. The employment of large numbers of weapons of all yields presents one set of conditions; whereas, small-yield weapons employed at infrequent intervals may present an entirely different picture. Accepting that the foregoing is not definitive, it can, nevertheless, provide a point of departure for a generalized visualization of the atomic battlefield. Operations on the atomic battlefield, as contrasted with the battlefield of the past, will be characterized by fewer troops in the forward areas of the combat zone in relation to the land area involved. This will result in less clearly defined lines of contact, greater fluidity of operations, and will place a premium upon the initiative and abilities of subordinate commanders to react to unforeseeable situations. These conditions imposed by atomic warfare will be the normal battlefield environment of the armored division and are those for which it is well-suited.

The geographic environment in which the armored division may be committed ideally should maximize the division's salient characteristics of great ground mobility and minimize its sensitivity to very difficult terrain. However, the ideal frequently may be unattainable in war; therefore, the division must be prepared to operate within a wide range of geographic and climatic conditions. Where physical environmental factors are such that they modify or markedly influence the application of normal tactical doctrine of the division, or require special consideration in planning and execution, the division then will be involved in special operations.

The armored division may be employed as an element of a major land force with fully developed lines of communications. Also probable may be its employment on independent or joint operations of no larger than corps size, or on small combined operations with allied forces, in which lines of communications are hastily established or incompletely developed. In either case it may operate in conjunction with infantry, airborne, or other armored divisions, either US or allied, or as an independent force for a period of time dependent upon the degree of support provided.

### Missions and Employment

The missions assigned to the armored division are those which capitalize upon its outstanding characteristics of ground mobility, great firepower, armor protection, and capabilities for violently destructive and disruptive action. It is particularly well-suited to execute missions of the following types:

1. Offensive operations designed to achieve deep penetration or wide envelopment to seize decisive objectives, destroy hostile forces, and disrupt the enemy rear areas.

2. Exploitation of the successes of other units and of the effects of atomic fires as a decisive element of a larger force.

3. Pursuit of enemy forces.

4. Covering force for a higher command conducting offensive, defensive, or retrograde operations.

5. Striking force of a higher command on the defense, or in the conduct of a mobile defense.

6. In conjunction with any of the foregoing, the destruction of enemy armored formations.

7. Special operations, such as offensive action against enemy airborne or guerrilla forces, and operations in conjunction with airborne or amphibious operations, raids, and seizure of special intelligence targets.

8. Operational reserve of the field army or higher command.

Successful execution of these missions is characterized by thorough rapid estimates and detailed planning, followed by violent execution. Once plans are put into effect the force with which the division's operations are prosecuted generally determines the degree of success achieved. Planning requires careful consideration of road nets, terrain trafficability, timing, and supply and maintenance requirements. It involves careful coordination and teamwork with all arms and services both within and in support of the division. Carefully developed signal communication plans and effective liaison are essential.

When committed to action the armored division strikes rapidly and decisively for its assigned objectives. This is accomplished by a combination of fast-moving maneuver and the rapid concentration of the division's strength against those areas of the enemy's greatest vulnerability with such relative speed and momentum as to deny the enemy time to react effectively.

The combination of speed, firepower, and mass of matériel generates great momentum in armored offensive action, with the objective of overrunning enemy forces or positions before forward movement can be slowed or halted. Unnecessary restriction of this momentum by establishing restraining control lines, limited objectives, or other measures that require high-level decisions in order to continue the advance will dissipate momentum. Loss of momentum may provide the enemy time to react and reorganize his defenses or result in the inadvertent concentration of the division or major elements into identifiable atomic targets.

### Combat Organization

The salient armored characteristic of shock action—resulting from the combination of mobility, maneuverability, and concentrated armored and atomic firepower—is brought to its highest state of effectiveness by the habitual employment of the combat command task force concept of organization for combat. The three combat command headquarters are the nucleus around which the major task groupings are organized for the execution of the armored division's combat operations. Each combat command is formed on a task force basis for a particular mission by the attachment of tank and armored infantry battalions and the provision of artillery, engineer, aviation, signal, and service support. Each element of the combat command, whether attached or in support, contributes its specific characteristics and capabilities to complement the combined effort.

Within each combat command the task force concept is further carried out by the formation of battalion task forces. Such task forces are formed by the cross-attachment of tank and armored infantry companies between attached battalions, or the utilization of "pure" tank or armored infantry battalions. The basis for determination of the proper ratio of tanks and infantry in the battalion task forces is based on the combat command commander's analysis of his mission, terrain, enemy situation confronting him, and available troops. Other combat, combat support, and service support units which may be attached to the combat command can be further attached to battalion task forces where necessary for specific missions. Normally, however, it will be desirable to retain attached supporting elements under combat command control in order to obtain maximum flexibility and support of the mission.

The characteristics of organizational flexibility afforded the armored division

by its tables of organization are meaningless unless exploited with imagination and daring by the commander. Terrain, weather, trafficability, and the enemy situation requires many changes in the organization and employment of the armored division. A fixed organization for combat for all situations is a dangerous approach to the conduct of armored division operations.

### Conclusion

Its inherent flexibility, coupled with mobility and extensive signal communication, enables the armored division and its subordinate commands to react to enemy action with the violent application of combat power. This can be done by the rapid maneuver of combat units and fires; by swiftly changing the direction of attack to bypass or outflank and surprise the enemy force; and by the ready responsiveness of the division to the will of the commander in the fluid situations normal to the atomic battlefield.

The rapid evolution of the tools of war has caused revolutionary changes in the concepts of ground warfare. Atomic weapons in quantity, potential improvement in target acquisition, and missiles of vastly increased range present new dimensions of firepower. Greatly improved means of battlefield and strategic mobility and communications contribute to these dynamic changes and permit new considerations of time and space. From this revolution of ideas and weapons there has emerged a new concept of mobile ground combat to be conducted at a tempo and on a scale never before obtainable. Within this concept a modernized and improved armored division provides a powerful mobile force of combined arms to dominate a dispersed and fluid battle area. By its tremendous volume of firepower, crushing shock action, armor protected mobility, extensive and flexible signal communication, and responsiveness to the exigencies of battle, this new armored division presents a ground weapon designed for decisive missions.

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**Advances in firepower, mobility, and communications are producing major changes in tactics and in organization, and in the methods of employing ground forces in warfare. The battlefield of tomorrow will be very different than in the past.**

**In an atomic war, the battlefield will be larger and combat action will be characterized by rapid movement and extended intervals between units. Formations will be dispersed, but will be capable of fleeting concentration to seize an objective.**

* * * * * * *

**The Army can no longer think in terms of an approaching atomic age. That age is here. Today's Army is an atomic Army with capabilities which were unheard of a few short years ago.**

*Lieutenant General C. D. Eddleman*

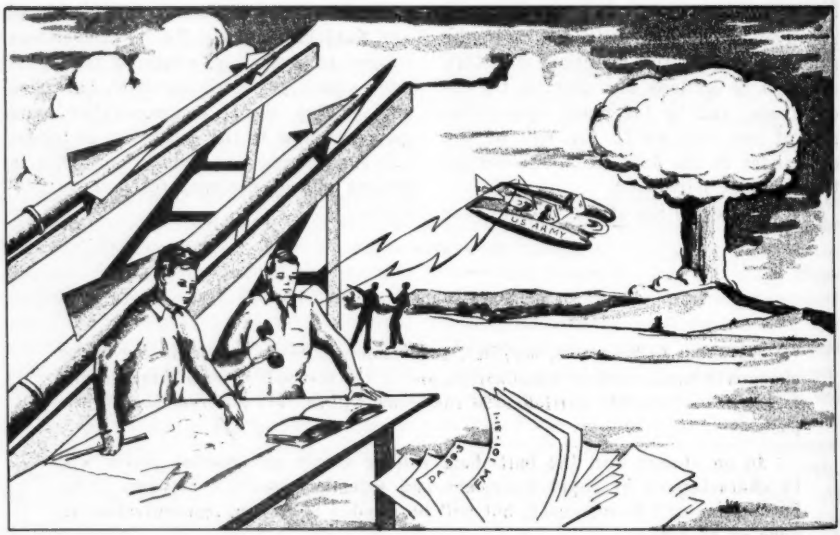
# KEEPING PACE WITH THE FUTURE--

## Training Officers to Fight On Atomic Battlefields

Colonel William E. Roberts, *Infantry*
Faculty, U. S. Army Command and General Staff College

***The impact of the atomic missile on tactical doctrine must be thoroughly impressed upon all personnel in the Army. Our Army schools must be the fountainhead from which spring the required new principles and procedures. The importance of maximum integration of guided missiles and atomics into the programs of instruction in our Army schools cannot be overemphasized.***

**—General Willard G. Wyman**
**Commanding General, US CONARC**




*This is the third in a series of articles expanding various aspects of "USA Command and General Staff College Keeps Pace With the Future," written by Major General Lionel C. McGarr, USA, Commandant of the College, and published in the April 1957 issue of the* MILITARY REVIEW. *—Editor.*

IN THE autumn of 1956 the Staff and Faculty of the United States Army Command and General Staff College received the "Commandant's Guidance" for the preparation of the 1957 course of instruction, embodying the concepts and philosophy which were to provide the basis for the development of the present curriculum at the College.

This guidance contained a statement which was to set the tone of the thinking and planning for the preparation and presentation of the 1957-58 courses of study and emphasized the necessity for orienting the minds of all Army officers toward the future:

*The Atomic Era is upon us. A new division has recently been approved to fight nuclear as well as conventional war. Accordingly, from the beginning we must teach the student to think, act, and react primarily in terms of an atomic environment on the battlefield. To accomplish the College mission, we must abandon outmoded concepts and procedures and replace them with fresh and forward-thinking approaches that recognize the realities of the* present—*and the* future.

### The College Mission

The Command and General Staff College level of responsibility is that of division, corps, and field army, including their logistics systems; the communications zone, and its subordinate elements; and the theater army personnel replacement system. Within this scope the mission is *instructional, doctrinal,* and in *support* of *training.* Simply put, the College prepares officers to serve as commanders and general staff officers at the above levels. It initiates action to formulate or revise doctrine. It prepares training literature and it provides other training support.

### The Department of Special Weapons

The Department of Special Weapons is the academic department responsible for the basic technical atomic aspects of instruction, doctrine, and training support. (See chart.) The department also has responsibility for the fundamentals of Chemical, Biological, and Radiological (CBR) warfare. What is this Department of Special Weapons; how is it organized, and what does it contribute to the accomplishment of the over-all College mission?

### History and Organization

With the advent of the military use of the atomic bomb at *Hiroshima* and *Nagasaki* in the closing days of World War II, a new and powerful military weapon was born. With its birth the requirement for its optimum military use was established. Organized early in 1952, the department began compiling a course of instruction to prepare selected officers as the technicians required for the target analysis procedures then envisaged. For the next several years the primary instructional mission of the department was to prepare target analysts to serve as advisors to commanders and staff officers in the technical details of atomic weapons employment. During this period the first College texts on the subject of atomic weapons employment were completed. These early texts, which were revised and improved almost continually as new data became available, were the forerunners of several of the present Army field manuals. In 1955 the department began to present basic technical atomic instruction to the Regular and Associate Courses. In 1956 the United States Continental Army Command (US CONARC) directed the establishment of a two-week Senior Officer Atomic

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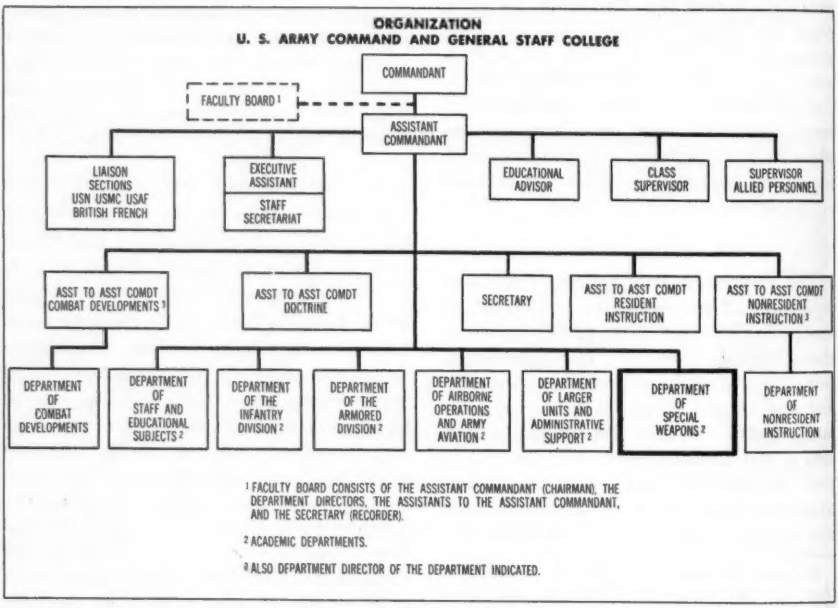
Employment Course. This "refresher and familiarization" course required the department to devise basic technical instruction appropriate for senior commanders. Thus the department currently is assigned the responsibility of developing and teaching basic atomic doctrine for commanders and staff officers as well as their atomic weapons staff advisors.

The present Department of Special Weapons is organized into three principal


ORGANIZATION
U. S. ARMY COMMAND AND GENERAL STAFF COLLEGE
COMMANDANT
FACULTY BOARD 1
ASSISTANT COMMANDANT
LIAISON SECTIONS USN USMC USAF BRITISH FRENCH
EXECUTIVE ASSISTANT
STAFF SECRETARIAT
EDUCATIONAL ADVISOR
CLASS SUPERVISOR
SUPERVISOR ALLIED PERSONNEL
ASST TO ASST COMDT COMBAT DEVELOPMENTS 3
ASST TO ASST COMDT DOCTRINE
SECRETARY
ASST TO ASST COMDT RESIDENT INSTRUCTION
ASST TO ASST COMDT NONRESIDENT INSTRUCTION 3
DEPARTMENT OF COMBAT DEVELOPMENTS
DEPARTMENT OF STAFF AND EDUCATIONAL SUBJECTS 2
DEPARTMENT OF THE INFANTRY DIVISION 2
DEPARTMENT OF THE ARMORED DIVISION 2
DEPARTMENT OF AIRBORNE OPERATIONS AND ARMY AVIATION 2
DEPARTMENT OF LARGER UNITS AND ADMINISTRATIVE SUPPORT 2
DEPARTMENT OF SPECIAL WEAPONS 2
DEPARTMENT OF NONRESIDENT INSTRUCTION
1 FACULTY BOARD CONSISTS OF THE ASSISTANT COMMANDANT (CHAIRMAN), THE DEPARTMENT DIRECTORS, THE ASSISTANTS TO THE ASSISTANT COMMANDANT, AND THE SECRETARY (RECORDER).
2 ACADEMIC DEPARTMENTS.
3 ALSO DEPARTMENT DIRECTOR OF THE DEPARTMENT INDICATED.

sections to deal with the basic technical considerations involved in the use of nuclear weapons: The characteristics and capabilities of atomic weapons and their delivery means, the damage and casualty producing effects resulting from the atomic explosion, and the techniques and principles involved in their tactical employment. It is important to note that the department has assigned combat arms and technical service officers to ensure a balanced team approach to all technical aspects of atomics.

### Instructional Mission

All College courses of instruction have basic atomics integrated into the course content. The following courses are presented at Fort Leavenworth.

### Regular and Associate Courses

The College curriculum is fashioned around the Regular Course which prepares *officers to serve as commanders and general staff officers at division, corps, and field army including their logistical systems, the communications zone and its subordinate elements, and the theater army replacement system.* All instruction reflects the atomic-age Army and its required versatility in the many roles it will have in different forms of war. The Regular Course is primarily atomic, since in the future ground operations can be expected to take place under the threat of the employment of atomic weapons. The scale of use of these weapons varies from the threat only, through intermit-

tent and wide use, to their unrestricted use in an all-out thermonuclear exchange. The environment ranges from "active atomic" to "nonactive atomic." The bulk of applicatory tactical and logistical instruction is based on active atomic conditions. Nonactive atomic operations are taught with varying degrees of the threat of use of atomic weapons, and to the extent necessary to ensure that the graduate is capable of performing with equal facility in either active or nonactive atomic conditions.

Two "Associate Classes" are conducted each year as directed by Department of the Army, one in the fall and one in the spring. Similar to the Regular Course, although modified in scope, their purpose is *to qualify officers to serve with the general staff of combat divisions or logistical commands and to familiarize them with the duties of the general staff at corps and army or communications zone level.*

**Senior Officer Atomic Employment Course**

The "Senior Officer Atomic Employment Course" *familiarizes major tactical unit commanders and their senior staff officers in the tactics, techniques, and procedures for the employment of atomic weapons to support army operations, and the problems inherent in the employment of these weapons.* This course is designed to bring senior officers up to date on the latest doctrine and techniques on the tactical employment of atomic weapons. Fourteen of these courses are scheduled for the current academic year.

**Special Weapons Course**

This course *trains selected officers at general staff level in the necessary details of the effects of atomic weapons and the procedures essential for the tactical employment of such weapons.*

It provides the trained atomic weapons staff officers essential to divisions, corps, and field armies. The department presents two versions of the Special Weapons Course. One is a five-week course, drawing for its students selected officers from units throughout the U. S. Continental Army Command. The other is a three-week course which follows and is composed of graduates from each Regular and Associate class who have shown proficiency in basic atomics. Often referred to as the "captive" course because it directly follows those courses, its graduates are qualified to the same degree and receive the same prefix 5 (Atomic Specialist) rating added to the MOS as graduates of the regular five-week Special Weapons Course.

Following normal College policy, these courses are kept currently up to date. Therefore, they incorporate the evaluated impact of new data on weapons and effects from all pertinent sources.

**Other Courses**

The department has an active part in the *National Guard and Reserve Division Refresher Courses* presented yearly at the College to staffs of each National Guard and Army Reserve division of the Military Establishment. During these one-week courses the staffs are provided the latest information on nuclear weapons employment. Instruction is adapted from that presented to the Senior Officer Course. Commanders and staffs of Army Reserve Logistical Commands are trained in the principles and techniques of administrative support provided by a communications zone under conditions of active

***The creation of the atomic weapon with attendant problems for its integration into tactics, organization, and the military arsenal has created a need for thoroughly educating officers in the nuclear concept***

atomic warfare in the *Logistical Command Refresher Course*. This course is similar to the division refresher course, although the subject matter is specially selected to meet the requirement of the logistical command.

Since new data and new procedures and concepts on nuclear warfare are rapidly being developed, there is a definite need to keep graduates of the Special Weapons Course current in their atomic thinking. To fill this need, the Department of Special Weapons supports the over-all College mission by sending each year to major US Army commands throughout the world complete packets of instructional material for a one-week refresher course. Utilizing this material, the major commands, frequently using recent graduates of the College Special Weapons Course, conduct refresher training at home stations for their Atomic Weapons Staff Officers.

### General

Except for the Special Weapons Course in which the Department of Special Weapons conducts all instruction, each academic department has primary responsibility for the advanced integrated atomic aspects in its instructional area. For example, atomic logistics, the importance of which is heavily emphasized, is incorporated in the logistical instruction presented by the Department of Larger Units and Administrative Support.

The initial unit of instruction presented by the Department of Special Weapons provides the student an adequate background in the basic technical aspects of atomic weapons employment. The student learns the characteristics and capabilities of nuclear weapons and their delivery means; the response of tactical targets to the casualty and damage producing effects of these weapons; and the fundamentals and procedures for their tactical employment.

With this background, the progressively integrated atomic instruction presented by other departments enables the student to increase his knowledge of tactical employment of atomic weapons. He learns to isolate the salient features of atomic problems and to make valid assumptions to facilitate their solution, all of which leads to sound decisions. He is prepared to assess the impact of nuclear weapons on the battlefield of the future, and to orient his thinking on the new concepts of organization and doctrine required for their tactical employment. The Department of Special Weapons also assists other department chiefs in the proper integration of atomics in their respective units of instruction.

### CBR Warfare Instruction

Because the "area coverage" aspect of Chemical, Biological, and Radiological (CBR) warfare is similar to the widespread effects of atomic weapons, because it may be used to complement the use of atomics, and because of the technical skills required in teaching this subject, the Department of Special Weapons also presents basic instruction in CBR warfare to the Regular, Associate, and Special Weapons Courses. As a collateral mission, the Chemical Corps officer assigned to the Department of Special Weapons serves as an advisor in CBR warfare to all other College agencies.

### Problems of Instruction and Changes Effected

The newness and complexity of our present weapons, delivery systems, and effects data combine to increase the difficulty of presenting effective, valid instruction.

The Department of Special Weapons is continually striving to improve and simplify its instruction. The early difficulties in instruction are being overcome by three approaches: *simplification in the presentation and usability of effects data,*

use of *simpler target analysis procedures*, and *development of more practicable methods of instruction.*

The fact that *timely* target analysis is the key to effective employment of nuclear weapons has become more widely appreciated. Consequently, it has been both desirable and necessary to simplify procedures to permit more rapid analysis, still including an adequate estimate of expected damage and casualties.

One of the significant contributions toward the development of more simple and practicable effects data and target analysis procedures was made in 1955 by the Office of Special Weapons Development Division (OSWDD), a field agency of US CONARC. At that time it was under the direction of (now) Major General Dwight E. Beach. The atomic damage template and the system of target analysis it pioneered represent a simple, speedy procedure for the selection of an atomic weapon to strike a tactical target. Essentially, the atomic damage template is a device which allows a visual appreciation of an atomic weapon's probable effects against the target. It is a system which avoids the more complex (and slower) procedures previously employed.

Hand in hand with advances in simplifying analysis procedures, complementary improvements in instructional techniques have been adopted in the atomic instruction presented by the Department of Special Weapons.

Old teaching practices called for the presentation of a wealth of technical material in the classroom, principally by the lecture and conference methods of instruction. Frequently, such methods of instruction resulted in inadequate retention of subject matter by the students. Too little time remained for actual problem solving which would permit the student to make the necessary repeated use of the principles of atomic target analysis.

Capitalizing on these lessons learned, a fresh approach was adopted for the 1957-58 curriculum. As a desired step toward further simplification, two reference books were written and issued to students. Reference Book 101-31-1, *Nuclear Weapons Employment*, a study text for classified instruction, contains much of the material formerly presented by the instructor from the platform. Sample problems illustrate the application of the principles of atomic weapon employment. The student studies specified material prior to attending the next day's class. Some classroom time is used to clear up in the mind of the student questions which develop from his night study and to fix the "learning areas" for the lesson. The remaining time in class (and this is the major portion of the time allowed) is spent in solving and discussing typical problems. Although basic weapons instruction is technical, all problems are oriented toward giving officers practice in isolating facts, making sound assumptions, and arriving at decisions for the proper employment of atomic weapons. The student studies and applies the principles learned; the instructor observes, guides, corrects, and assists where necessary. In short, the classroom provides the learning experience but the student, by learning to think, must do the learning.

Two other texts supplement the Reference Book. One, called the *Target Analysis Book*, contains certain data on weapons and their effects. It provides more complex data reduced to a simplified form. It is easier to use, speeds up the solution

***In keeping with atomic era requirements, a fresh approach toward doctrine, tactics, organization, and principles of nuclear weapon employment is being taught qualified officers at the U. S. Army CGSC***

of problems, and eliminates time-consuming mechanical calculations. The other text is a student problem book which contains the comprehensive series of typical problems the student must learn to solve. Together, these new texts simplify the complex subject and facilitate faster and better learning.

A similar text, Reference Book 39-1-1, *Nuclear Weapons Employment*, is used in conjunction with Department of the Army Pamphlet 39-1, *Atomic Weapons Employment*, for the instruction of the many Allied officer students from numerous foreign countries. The same texts are provided US officers and constitute a "common language" for the unclassified tactical instruction throughout the curriculum.

Atomic instruction also has benefited from the integration and broad improvements in the presentation of the USA CGSC curriculum. More efficient scheduling of classes and provision for some supervised study periods during the day are among the improvements instituted for the current curriculum. Scheduling provides for instruction in three-hour blocks or lessons early in the course. Normally, the subject presented in the afternoon is different from the one presented in the morning. This scheduling allows proper grouping of related subjects for maximum flexibility in control by the instructor. It maintains student efficiency by guarding against excessively long classroom periods, provides variety, and allows student time for relaxation from his intensive study. Also, projected improvements in scheduling the basic technical atomic instruction and much of the Staff instruction should materially reduce the present, relatively heavy, study requirements.

In addition to the technical advice given other instructional departments, atomic problems actually prepared by the Department of Special Weapons are now partly tactical, rather than entirely technical. More realistic situations are used and they are oriented more toward the commander and general staff officer, rather than overemphasizing the Atomic Weapons Staff Officer. Continuing improvement is projected and constant effort is being made toward further *simplification—greater usability*—and steady *improvement* in methods of instruction, texts, and course content.

### The Doctrinal Mission

Turning from the field of *Instruction* to that of *Doctrine* the College has the mission of initiating action as necessary to formulate or revise doctrine, including joint doctrine, within the concept guidance furnished by US CONARC. It develops doctrine both as directed and as generated within the College. As directed, it reviews, evaluates, and coordinates doctrine developed by other services and other Army agencies, including doctrine for joint operations. In cooperation with the other academic departments and under the staff supervision of the Assistant to the Assistant Commandant for Doctrine (see chart), the Department of Special Weapons supports this mission as it applies to the basic technical aspects of nuclear weapon employment. It assists in determining and evaluating the impact of nuclear weapons on concepts of present *and future* organization, employment, and weapons. Today, more emphasis is placed on the department's doctrinal mission, and with the increasing requirement for adequate doctrine to shape future organizational and employment concepts, this emphasis will continue to increase.

### The Training Literature Support Mission

In addition to the reference books utilized within the College, the Department of Special Weapons, in support of the College mission, is charged with the responsibility of revising certain Department of the Army training literature and

training films pertaining to atomic weapons employment. The training literature include two classified manuals, Field Manual 101-31, *Atomic Weapons Employment*, Field Manual 101-31A, *Atomic Weapons Employment*, and Department of the Army Pamphlet 39-1. Based on the latest available data released on nuclear test programs and publications of the Atomic Energy Commission and the Armed Forces Special Weapons Project, periodic revisions are prepared and staffed for forwarding through US CONARC for final approval by Department of the Army. Major changes are reviewed by all service schools in the same manner as for the many other manuals for which USA CGSC is responsible and which are prepared by sister departments of the College.

Training aids produced by the Field Training Command Armed Forces Special Weapons Project at Sandia, New Mexico, and training films pertaining to weapons and effects are reviewed and recommendations for use throughout the Army school system are submitted to US CONARC. Thus the Command and General Staff College influences national and worldwide military thought on the subject of nuclear warfare as it applies to present and future concepts.

New doctrine and concepts on organization and principles of nuclear weapon employment, included in each revision, will reach out around the world in material written and revised at Leavenworth.

### Summary

The creation of the atomic weapon brought forth a tremendous force. It brought forth, also, many problems for the integration of this weapon into the military arsenal. The impact of the atom has already been felt throughout the world. All past military thinking—even to include changing emphasis placed on the application of the ageless Principles of War—is being reoriented.

New concepts must be developed; new doctrine formulated and tested — with new organizations and new procedures for employment. Only two nuclear weapons have been used against an enemy. None have been used in a tactical role. What we now know of these weapons, other than from surveys of *Hiroshima* and *Nagasaki*, has been learned from carefully controlled tests which are designed to test advance theories and confirm calculations. In carrying out their assigned duties, a major contribution toward knowledge of tomorrow's battlefield—a Leavenworth tradition—is being made by the officers graduated from the U. S. Army Command and General Staff College.

In an analysis of the Army's present capabilities and future trends, one of several top-level analyses highlighting the second annual meeting of the Association of the United States Army, General Maxwell D. Taylor, Chief of Staff, said in part:

*Perhaps the most pressing problem which the Army faces today is to assess the impact of atomic-bearing missiles and projectiles on the nature of the land battle and, then, to effect a proper adjustment of organization, techniques, equipment, and weapons.*

The U. S. Army Command and General Staff College in carrying out its assigned mission is directing its energies toward the solution of this most important problem.

# The Balkans in European Military Strategy

Slavko N. Bjelajac and
Lieutenant Colonel Edward R. Wainhouse, *Artillery*

THE Balkans, that area lying between the Danube River and the Adriatic, Aegean, and Black Seas, often have been referred to as the "trouble spot of Europe," the "powder keg," and the "wild Balkans." Although these references derive, in part, from the intermittent political violence and explosive behavioral characteristics of the diverse ethnic groups in this area, the geographical position of the Balkans is the principal factor in the area's sanguinary history.

For centuries the Balkans area has been the crossroads of the armies of the world. From the east came the Huns, Avars, Tatars, Turks, and Russians; from the west the Crusaders, the Venetians, and the English; and from the north the Hungarians and Germans. Even with the advance of military technology the Balkans still retain their critical strategic importance to the major European powers. In World War II the area was a cardinal consideration in Hitler's plans for his *Drang nach Osten*. In the postwar years the Soviet Union intensified her so-called "Greek Project"—a drive toward the Mediterranean—which was a continuation of the long-range objective originated by Catherine the Great, pursued by the czars, and always an integral part of Russian military planning and international diplomacy. This project resulted in the ill-fated Greek guerrilla war of 1946-49 which ended as a major defeat for the Kremlin strategists.

### Strategic Factors

Although Western Russia encompasses an enormous land mass, in the geostrategic sense it may be considered encircled, because its access to maritime space is limited to the Baltic Sea on the north and the Black Sea on the south, the exits from which are controlled by allied nations. Under these conditions the Soviets are forced to wage any war mainly over internal operational routes, and it is this factor which determines their European military strategy. (Figure 1.)

In addition to this handicap of encirclement, the Soviet theater of operations in Central and Eastern Europe, which was once considered a wide front militarily, has narrowed appreciably. The distance from the Black Sea to the Baltic Sea, at the Soviet Union border, is about 700 miles. Today's strategic and tactical aviation with its great speed and radius of action, highly mobile land forces, and allied domination of the sealanes are the significant factors in the shrinking of this military front.

An additional factor is the nature of the terrain in the Central and Eastern European areas where the critical massif —Carpathians, Beskids, Tatras, and Alps —and the Czech Quadrangle would divide the Soviet offensive forces into two parts. The bulk of these forces would be channeled across Poland and Germany with a front of approximately 250 to 300 miles —a half-hour jet flight. In the southern

***Yugoslavia is important to the West and to the Soviets. In the event of any future East-West conflict, the fate of the Balkans well may provide the answer to the question of victory for the belligerents***

part of this theater of operations the Soviet forces would be divided by the Carpathians and channeled into the Hungarian plains and through the Galati Gap into Romania. Both areas may be considered land straits in the strategic sense.

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### Soviet Objectives

The immediate Soviet military objectives, which derive from the necessity for obtaining control of the approaches to naval areas of operations, would be the securing of the Skagerrak by seizure of the bordering Norwegian, Swedish, and Danish land areas, and entry into the Mediterranean by occupation of the Balkans, including the Greek mainland and larger islands.

With the attainment of these military objectives by Soviet ground forces, the Soviet submarine fleet then would be in a most favorable position for large-scale operations against NATO shipping in the Atlantic Ocean and particularly against allied naval elements and oil supply routes in the Mediterranean. In support of this strategy the Soviets have constructed elaborate submarine facilities along the Baltic coast and converted the Albanian island of Saseno in the Bay of Valona into a Gibraltar-like fortress with pen facilities for approximately 100 submarines. The importance of the Saseno facilities alone for Soviet submarine warfare readily can be determined by comparison with the U-boat depredations of the Nazis who entered World War II with only slightly over half this number of submarines operational.

### Importance of Balkans

The significance of the Balkans area as a part of the NATO front is based on the following considerations:

1. Soviet occupation of this area and, consequently, control of the Dardanelles and the Salonika port would separate and isolate Turkey.

2. The seizure of mainland Greece would ensure Soviet capabilities of full logistical support for the Saseno base from which sustained submarine warfare could then be launched against allied maritime lines of communication with Turkey and the Middle East.

3. The Soviet Air Force would have

available airbases which would permit considerable extension of the radius of action for its tactical components over North Africa and Western Europe.

4. In the event of a Soviet offensive against Western Europe, the Balkans also would be of tremendous defensive value in that they would provide an anchor for the southern flank of the Soviet forces deployed in Central Europe. A correlative strategic effect would be to permit the Soviet ground forces an economy in their reserves which normally would be deployed in the Rostov-Odessa-Kiev triangle.

FIGURE 1.

It is for the above reasons that the fate of the Balkans well may provide the answer to the question of victory for the belligerents in the event of any future East-West conflict.

### NATO Southern Flank

Inherent in the defense of the Dardanelles complex which comprises NATO's southern flank are certain space-time factors which militate against the possibility of any initial allied success. A Soviet offensive, which most likely would be launched by Soviet concentrations in Bulgaria even before operations began in the central part of the European theater, could penetrate Greek Thrace in half a day. The Greek sector here is extremely shallow—20 to 50 miles from the Bulgarian border to the Aegean Sea—and in Turkish Thrace—75 to 80 miles wide from the Bulgarian border to the Sea of Marmara—the same situation precludes even an *adequate* tactical defense.

FIGURE 2.

**YUGOSLAVIA AS A NATO ALLY**

As for the time factors involved, the Greek and Turkish commands would be

faced with the dilemma of determining the exact force commitments necessary to ensure the strategic delay required by NATO without excessive commitment of units whose loss, since their evacuation from Thrace is highly problematic, would adversely affect future allied operations.

In view of the strategic importance of the Balkans in a Soviet offensive and the difficulties of defending the NATO southern flank in this area, Yugoslavia, because of her central geographic position and military potential, is a critical variable in the planning equations of both NATO and the Soviet High Command.

## YUGOSLAVIA AS A NATO ALLY

In the event of a Soviet invasion through the Balkans, Yugoslavia would be the key strategic factor in any defense of the highly vulnerable Salonika area and the Greek mainland. (Figure 2.)

The military value of the Yugoslav forces, which comparatively are among the strongest of the Balkan and satellite armies (Figure 3), is based on the following operational capabilities:

1. An offensive into Bulgaria against Soviet spearheads attacking Greek and Turkish Thrace.

2. An effective contribution to the defense of northern Italy by control of the Julian Alps which dominate the Trieste approaches to Italy.

3. Securing the mountainous heartland of Yugoslavia (Bosnia-Herzegovina, West Serbia, and Montenegro) from which to harass the Soviet forces' rear areas and lines of communication and to conduct unconventional warfare operations.

4. Isolation and liquidation of Albania.

5. Domination of the Danube River, thereby severing a major artery for supply of Romanian oil to the Soviet ground and air elements operating from Austria and Hungary.

In addition, a successful defense by Yugoslav forces would provide the NATO allies with a number of excellent debarkation areas along the Adriatic coast from which an allied buildup could be developed for an eventual counteroffensive aimed at Budapest.

## YUGOSLAVIA AS A SOVIET ALLY

There are two main strategic missions which Yugoslavia could undertake as an ally providing direct military cooperation and support to Soviet bloc forces. These include:

1. Assistance in maintaining the advance of Soviet forces into Western Europe.

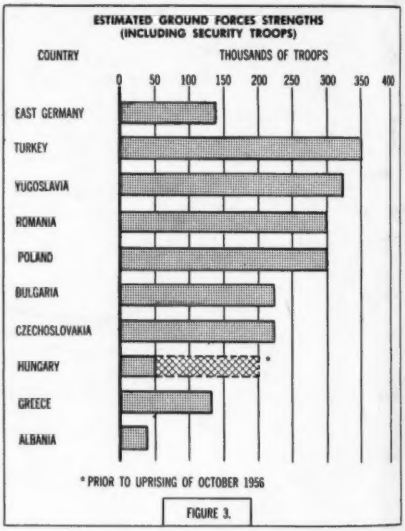

FIGURE 3.

2. Rapid seizure of the Greek mainland to ensure consolidation of control over the Salonika port (80 miles from the Yugoslav border) and the Aegean side of the Dardanelles. (Figure 4.)

The execution of the first mission necessitates operations over the critical route which leads from southwestern Hungary, where Soviet bloc forces could be concentrated before D-day, across northwestern Yugoslavia into Italy. It should be noted that the Julian Alps barriers, crit-

ical terrain in control of the eastern approaches to north Italy, is Yugoslav territory as a result of the postwar "solution" of the Trieste problem. Along this route a Soviet-Yugoslav advance also would obtain a maximum of unconventional warfare support from the Italian Communists who are particularly strong in the industrial areas of northern Italy.

The second mission could be executed by a Yugoslav penetration south along the Axios valley as axis of advance for capture of Salonika, and another offensive against major Greek defenses in central Greece (combined with auxiliary pressure by Albanian forces in western Greece and Epirus) in preparation for the final drive on Athens.

FIGURE 4.

**YUGOSLAVIA AS A SOVIET ALLY**

## YUGOSLAVIA AS A NEUTRAL

The possibility of present-day Yugoslavia remaining neutral in any future East-West conflict is exceedingly remote. Assuming there was sufficient political motivation for Yugoslavia to adopt a neutralist policy, and making the further assumption that the Soviet Union would respect this policy, a neutral Yugoslavia definitely would be to NATO's disadvantage:

1. Militarily, the ability of Greece and Turkey to defend against and delay the drive of Soviet forces toward their objectives would be lessened considerably.

2. NATO would lose the support of the most important armed forces in the Balkans.

3. The allies, with Yugoslav territory unavailable, would lose a highly desirable area from which unconventional warfare operations could be directed against the Soviets and satellites.

4. Psychological exploitation of initial Soviet victories by propagandists might adversely affect the existing pro-Western attitudes of substantial segments of the Yugoslav population.

### Conclusion

Despite irritations developing from supposed ideological differences with the Kremlin—irritations the current Soviet leaders worriedly are attempting to eliminate or minimize—the actual alignment of Yugoslavia in the event of hostilities remains an unknown quantity. Although Yugoslavia has not joined NATO, she is a signatory to the Balkan Pact along with Greece and Turkey. However, her commitments under this pact are minor. The extent of Yugoslav collaboration in the pact was not specified nor given a practical military form. Specific obligations for the use of Yugoslav forces are not included and neither is Yugoslavia required to come to the assistance of Greece and Turkey if either is attacked. She will be consulted by them and given time to study their proposals before reaching a decision. Since the time factor is essential to the effective defense of the Greek-Turkish complex, protracted deliberation by Yugoslavia could result in this sector being forced to succumb to a Soviet onslaught.

In its foreign policy, the current Yugoslav regime steadfastly has pursued the over-all objective of neutrality and has accepted economic and military aid from the East and the West. It can be expected that in the event of war Yugoslavia would be a valuable asset to the side which wins her support. Despite the fact that during the cold war she is steering an independent course somewhere between the two major power areas, it must be recognized that in case of a general war in Europe she would be subject to pressures designed to force her to join the Soviet bloc against the West.

In the event these pressures were successful, the allies would be confronted by a number of additional obstacles. However, the strategic asset which the allies have inside Yugoslavia is large numbers of the people themselves—people who are anti-Communist, anti-Soviet, and pro-West. Within this framework the conventional political, military, and psychological operations of the allies must be supplemented by the entire spectrum of available unconventional warfare means. These means, intelligently applied in the initial phases of a future conflict with the Soviet bloc, will provide an effective and decisive instrumentality for the long-range exploitation of vulnerabilities within the Soviet sphere of influence.

## The German Debacle of Stalingrad--

# Hitler Forbids Breakout

Colonel Herbert Selle, German Army, *Retired*
Translated and adapted by Mr. Karl T. Marx

*This is the second article of a two-part series in which the former commander of Engineer forces of the Sixth German Army describes the decimation and ultimate defeat of that Army at Stalingrad on the Russian steppes. Last month Colonel Selle described the German drive to Stalingrad, Hitler's strategy, and the massive Russian counteroffensive. In the following article he discusses Hitler's refusal to let the Sixth Army break out and gives a graphic word picture of life within beleagured, unconquered Stalingrad. His account concludes with his air evacuation just as the final act was drawing to a close—an evacuation ordered for a reason. A few weeks after reporting to German Supreme Headquarters, Colonel Selle and all members of his family were arrested for defeatist sentiments and for lowering the fighting morale of the German armed forces. He was condemned to death and only narrowly escaped the firing squad.—Editor.*

EVER since General (Friedrich) Paulus had flown into the *kessel* on 21 November 1942 (only two days after the Russians had closed their pinchers) he had formulated plans to break out and unite his troops with those fighting on the Don-Chir front. This course did not appear impossible. German troops had accomplished it before with great success and the spirit around Stalingrad was such that every man would have done his utmost to get out and make contact with outside forces.

General Paulus held a meeting with all his corps commanders and it was quickly agreed to contact Hitler to obtain permission to:

> *HAVE THE SIXTH ARMY BREAK THROUGH AT THE SOUTHWEST SECTOR OF THE* KESSEL, *BY CONCENTRATING ENOUGH TANKS AND TROOPS TO MAKE THIS POSSIBLE, AND THEN OPEN A PANZER (TANK) BORDERED ALLEY THROUGH WHICH ALL TROOPS AND NEEDED EQUIPMENT CAN BE FUNNELED OUT TO MAKE CONTACT WITH GERMAN TROOPS IN THE DON-CHIR AREA.*

Everyone agreed and all were confident that this fairly simple measure would be approved. About 100 heavy tanks, ready for action, already were in line. Troops began marching to their jumping off places, showing a new measure of confidence and hope. Another *kessel* would be broken, perhaps another glorious Kharkov.

***The fate of the Sixth German Army, encircled at Stalingrad, primarily was sealed because of Hitler's disregard of his leader's recommendations and his refusal to allow the army commander to attempt a breakout***

But on 23 November a telegraph message from Hitler ordered the Sixth Army to stay inside the encirclement and to wait for relief from the outside.

### Von Seydlitz Enters Plea

This order hit the generals and those acquainted with their plans like a stroke of lightning. Hope and daring were paralyzed and many a man faced a real, hard test of obedience versus commonsense and the strong drive for self-preservation. General von Seydlitz wanted to ignore the order and initiate the breakout. On 25 November he handed General Paulus a memorandum in which he prophesied in a shocking way the debacle of the Sixth Army in event it obeyed the orders of Hitler and did not break out toward the west or southwest during the next few days. Some sentences of this touching, impressive memorandum may be quoted:*

*To undervalue the spirit of the enemy in a situation so favorable to him and not to believe him capable of the only right action has always involved defeat in war history. It would, therefore, be an unequaled* va-banque *play that would cause not only the catastrophe of the Sixth Army but also have the gravest consequences for the final result of the entire war. The order of Hitler to keep the* igel *(encirclement) and to wait for relief from outside is founded on an absolutely unreal basis. It cannot be carried through and its consequences must be the debacle. It is, however, our holy duty to preserve and save our divisions, therefore, another order must be given or another decision be taken by the army herself. Our army has only the alternative of the breakthrough toward the southwest or ruin within a few weeks. We are morally responsible for the life or death of our soldiers. Our conscience toward the Sixth Army and our country commands us to refuse the orders of Hitler and assume for ourselves freedom of action. The lives of some hundred thousand German soldiers are at stake. There is no other way.*

General Paulus and his chief of staff—in spite of all doubts and scruples—could not agree to General von Seydlitz' passionate views. After a long inner struggle they made up their minds to comply with Hitler's orders. As a consequence, all previously ordered movements of tanks and troops were halted, and orders went out to start the *einigelung*, the process of rolling up like a hedgehog and waiting for the enemy to attack.

### Orders Without Support

Hitler's orders were typical of the man, typical of his wishful, unrealistic thinking. *Einigelung*—hedgehogging—meant dugouts, trenches, heavy digging equipment, winter uniforms, special underwear, heavy gloves, and special oil for trucks. It meant a soft soil for digging, not 30 inches of snow; not soil as hard as rock. It meant plenty of winter clothing, supplies, tools

* Published here for the first time.

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*Mr. Karl T. Marx is an American citizen of German ancestry. He was vocational counselor at the YMCA in New York City for 16 years where he specialized in immigrant and refugee work. His other activities include teaching German over Radio Station WOR; director and writer of "All Nations Hour," Radio Station WGBS (now WMCA), New York; and producing cultural and technical films. He also is the author of* Der Feigling (The Coward), *five booklets of aphorisms, many short stories, and numerous technical articles on unemployment and vocational guidance. For the past 10 years he has been an executive in a textile machinery concern in New Jersey.*

—and of all these things the Sixth Army had virtually none. Swarms of Russian fighter planes followed the few German relief planes almost down to the snow-covered airfields. Ammunition dwindled; so did supplies. Rations had to be cut again and again. And there were only two makeshift airfields left.

Hitler's decision, it was learned later, was made after *Reichmarshall* Göring had assured him that his air force would be ready and able to supply Stalingrad with all needed supplies. Göring's chief of staff, General Jeschonnek, had counseled against such impossible, nay, criminal promises, but was overruled. (General Jeschonnek committed suicide after the tragic Stalingrad ending.)

We in Stalingrad computed hard and harsh figures, factual figures, about such a boasted airlift. We would need 1,000 landings a day to obtain 750 tons of needed goods. To fly 1,000 planes a day would require another 1,000 planes for replacements due to attrition. We needed tools and gasoline, hundreds of mechanics, repair shops—and we had only two small airfields left. (After 14 January 1943 there was only one.)

### Hollow Air Promises

The tragedy of Stalingrad largely is a tragedy of the German Air Force, since Hitler's decision was based on Göring's boast that he would supply the beleagured troops. Instead of 1,000 planes a day there were 50 to 70 at first, and then never more than 25 planes a day, often only 15. The greatest amount of provisions, ammunition, and gasoline flown in during one day was 105.5 tons. After the Pitomnik airfield was lost on 14 January very few pilots dared or were able to land at the remaining field at Gumrak. All they could do, after having escaped swarms of Russian fighters, was to drop their supply packets and then turn tail. Slowly, hunger started its job of strangulation. And far away, in a gaudy uniform, *Herr Reichmarshall* Göring dined and wined and boasted about his invincible air armada—until even Hitler realized that his boon companion had put one over on him, that his promise of a Stalingrad airlift was a cruel hoax, and that 300,000 men were doomed unless something was done and done quickly.

It mattered little now that *Reichmarshall* Göring was no longer consulted, nor even permitted to share the august presence of his one-time companion. The Sixth Army was starving, dying, freezing to death, almost waiting for the *coup de grâce*. Napoleon must have been grinning in his tomb in far away Paris. He knew the Russian steppes—he knew the long, trackless wastelands, the snow, and bitter cold of Russia.

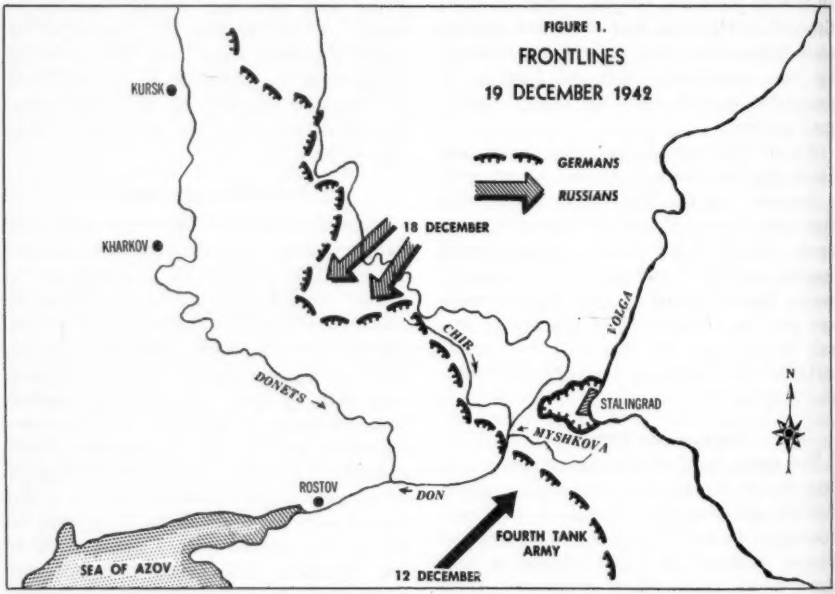
### Relief Attempt Fails

At the beginning of December 1942 there was new hope. On 12 December Colonel General Hoth with his Fourth Tank Army started from Rostov up the Don River to relieve Stalingrad. (Figure 1.) We staff officers knew, however, that this Fourth Tank Army contained only one strong tank division and two seriously mauled tank divisions. In spite of this they succeeded at first in their northward thrust and gained 55 miles. Again General Paulus asked permission to break out to make contact with General Hoth. With this he was in full accord with Colonel General von Manstein, chief commander of the army group Don. Manstein had done everything possible to accomplish the breakthrough of the Sixth Army in those days. But again permission was denied, and this time there was almost open rebellion at Sixth Army Headquarters. However, General Paulus obeyed once more. It must have been a hard struggle for this gentleman-soldier to obey the order.

### So Near, Yet So Far

The Fourth Tank Army now was only 30 miles from the Stalingrad southwestern

perimeter. Had General Paulus attacked, had he ignored the commands of Hitler, had he linked up with Hoth and then hastened to Hitler to offer his head for breaking out and saving 300,000 men, the end might have been different. But he did not. On 23 December Colonel General von Manstein was forced to withdraw the elite of Hoth's "tank army," the 6th Panzer Division, from the front of the counter-attack in order to master a formidable situation arising from a Russian break-through at the front of the Italian army corps (Figures 1 and 2). This Italian collapse threatened the entire area as far as the Black Sea. Colonel General Hoth had no other alternative but to fall back, leaving Stalingrad to its fate.




Now another hasty and costly retreat. To make matters worse, on New Year's Day Hitler sent to the Sixth Army his special and personal greetings plus his renewed assurances that everything was being done to relieve Stalingrad!

Only among friends did we voice our thoughts and beliefs. We no longer had any trust in anything Hitler said or did. His orders to us appeared to be those of a man obsessed with an insatiable drive for power and a complete lack of understanding of the realities of war. He lacked a sense of value, of *mass und Ziel.*

### Life Within the *Kessel*

To keep an encircled army of roughly 300,000 men alive is a task that no supply genius, cut off from replenishing sources, has ever solved. Provisions at Stalingrad never had been plentiful, and it now became a matter of cutting rations to the very minimum. Here, again, there was no way to figure out how to stretch, how to cut, how to keep going, at rock bottom rations, until Hitler's often promised push toward us would relieve all pressure and bring food and supplies aplenty.

The matter resolved itself into a question of whether to eat more and give up

sooner or eat less and keep going until the last can of food had been emptied. It was decided to eat less and that is truly an understatement. Beginning in January 1943 each of us received a daily ration of about three ounces (75 grams to be exact) and a daily vegetable ration of two pounds for 15 men. Potatoes and meat were unavailable, except the "meat" we hacked out with axes from the frozen horse cadavers lying all around us. The horses of the encircled infantry divisions had long been slaughtered for their meat. Water was nowhere available on the Russian steppes—we had to obtain it by melting snow. Slowly the once proud Sixth Army became an army of walking skeletons with no relief in sight.

### Surrender Is Demanded

During the first week in January 1943 Russian officers, under a flag of truce, approached our northern front to ask for surrender. Some of us felt that the conditions contained honorable terms, even permitting our officers to keep their sidearms. We did not know then that one could not have confidence in their promises. On the other hand, the offer ended with threats of complete annihilation of the Sixth Army within a very short time.

Although the offer was discussed among the various staff components, General Paulus had little choice but to decline—Hitler all too frequently had yelled about the "no surrender" determination of "his" armies. Of course, the "Führer" declined as he had also declined a previous request by General Paulus to grant the Sixth Army freedom of action. Again General von Seydlitz counseled to strike—even against Hitler's orders.

### Plan Final Defense

On 9 January the chief of staff requested my presence. He believed the Russian attack would start toward the end of January and that it would be directed against the Marinovka salient in the Karpovka valley in an attempt to wrest from us the rather favorable terrain with its natural defenses and prepared dugouts. From that point on they would then try to drive us onto the steppes where there would be no fortifications, no hills, no river banks—only snow and ice and flat country. I was ordered to reconnoiter and work out with the sector commanders an approximate line running southward from the east bank of the Rossoshka River near Nizhne-Alekseyevskiy toward Rogachik on the Karpovka River in case the Russian attack succeeded in crushing the German Marinovka salient.

Contemplating the construction of fortifications in snow, ice, and howling winds with nothing more than light equipment in the hands of troops half alive, I went on my way with heavy heart. It was too late.

The next day, 10 January, the Russian attack began—fully 15 to 20 days earlier than the Germand High Command had anticipated. The command, however, was right as far as the point of attack was concerned. It hit the German 76th Division north of the Karpovka River, first a concentrated, heavy artillery bombardment and then the tanks. In a short time Russian advance elements had reached the 76th command post and there was no longer any point to explain my mission about a new line of defense. We had to retreat.

Slowly hysteria mounted in the wild battle melee that ensued. More and more the *kessel* was contracted, with German troops stumbling over the steppes toward the center, away from the tank-haunted, fiery, and murderous perimeters. Stalingrad itself was now the only hope. Its ruined houses, factories, and giant apartments meant shelter and a measure of relief from the howling, tearing winds of the steppes, and the deadly, chilling cold.

Hundreds of wounded men stood along the hardly visible roads, pitifully looking

at our car. Some held their crutches aloft in a final, pleading gesture. Some just stared resignedly. I stopped the car and succeeded in placing 12 wounded men inside, on the roof, on the running board, and mud guards, while I sat on the motor hood, precariously balancing myself as the driver bumped along the icy road. We stopped at the field hospital in Gumrak and there I left the grateful men in the care of our medics.

### Retreat Into Nothingness

On 14 January the airfield at Pitomnik was precipitously evacuated, largely due to gripping panic among rear echelon personnel who imagined Russian tanks where there were none. Fear struck everywhere, generating an understandable urge for self-preservation that blotted out any sense of discipline or order. General Paulus and the chief of staff were furious at this unsoldierly behavior and at the unwarranted evacuation in the face of an enemy who was, in fact, still one mile away. Somehow the panicked troops rallied at the hard, decisive word from above and promptly reoccupied the needlessly abandoned Pitomnik airfield. The Russians, however, now were at our throats—had pushed us away from prepared positions into nothingness, into howling emptiness, into a wasteland of snow. There was nothing to hold to any more. Even the soil had turned to stone, and would not admit us.

South of the village of Gonchara I met General Strecker, commander of the XI Army Corps. We had been old friends and I was very fond of him. He was a true leader, a true soldier-commander, revered by his troops to whom he was a father and counselor. The general met me in the bunker of his chief of staff, a Colonel Grosskurth, who belonged—as I learned later—to the leading members of the secret resistance movement. Somehow, I felt that the general wanted to be alone with me. He beckoned me to come outside. Then he began: "What are you going to do when the end has come?"

"I cannot say now what I will do, general, but most likely I shall shoot myself," I answered. His reply: "I have the same intentions, if and when circumstances permit it. But you know that General Paulus has expressly forbidden such a course." "Yes, I know, general, but in a situation like ours is going to be, he can no longer forbid anything." "Do you believe that we should continue in this catastrophic way until we collapse?" "Yes, I believe so," I replied, "unless we make one final effort. This situation calls for unusual thinking and efforts."

The general nodded in agreement then averted his eyes as if he wanted to scan the gray skies. Slowly he spoke: "It is very difficult to find the line of correct response and deed. An army stands and falls with the age-honored dictum of obedience. Yet this desperate situation calls for independent thinking and action."

"This gnawing feeling of being wrong by being right, by obeying according to the book and according to tradition, is the decisive point," I replied. "Right here in Stalingrad blind obedience becomes a farcical attitude, with nothing to do but to wait for the next pronouncement from faraway Hitler who does not believe what he should see but sees only what he likes to believe. But who will stand up and give the signal?" My bold words brought no reply. The general shook hands with me and then he slowly turned to go to his bunker.

From army reports we ascertained that the German front had moved away from us to a distance of 130 miles. (Figure 2.) This fact meant still less help from airplanes, particularly medical supplies, since our planes would now have to fly without fighter escort and would more and more be exposed to the increasing attacks by Russian planes. We had become an island in a seething sea.

### Final Disintegration

Shall we ever see Germany again? Maybe never. Brooding and waiting, hoping against hope with bitterness, mounting despair—such was the emotional barometer during the next few weeks. The last vestiges of rank had disappeared. Emaciated, hollow-eyed, freezing men held on to memories now standing out in strong relief against the misery and hopelessness about them. There was a wave of suicides by men who preferred death to a Communist prison.

Some of us expressed bitter anger at this Hitler-made deathtrap. One staffer exploded: "Now there are only 150,000 men left, but these 150,000 are all ripe for treason." There were long talks about the inner motives of treason, and whether there was not treason from above against the men who slowly rotted away after having been refused permission to break through the iron ring about them. Some of the officers urged me to talk to General Paulus, knowing that I enjoyed his confidence. They felt that I should tell him about the mounting resentment toward the do-nothing attitude, this hopeless waiting for the trap to be closed. At first I hesitated, but when I finally faced General Paulus and cautiously advanced my thoughts about the morale of the troops, the sufferings and the hunger-induced lack of will to hold out any longer, he declined to listen and let me leave his bunker without another word.

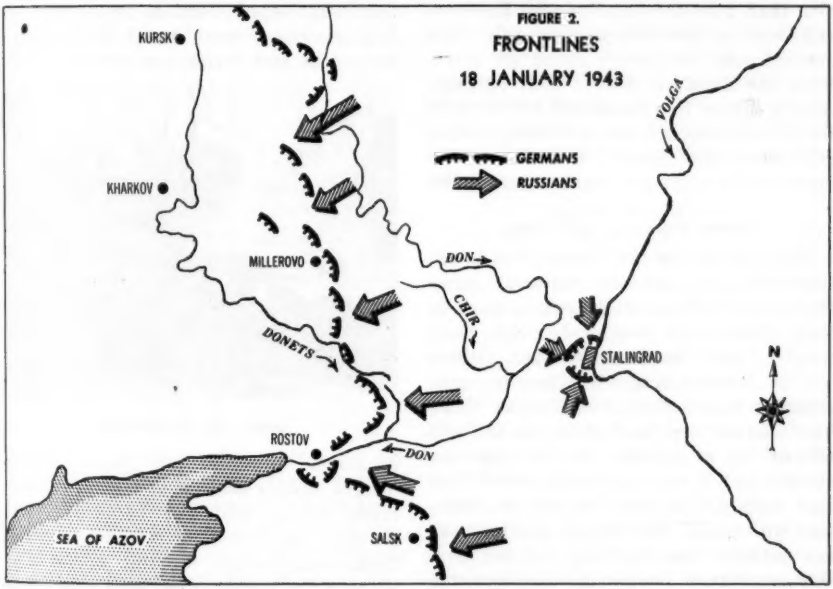



FIGURE 2.
FRONTLINES
18 JANUARY 1943

The Russian tanks attacked from the north, south, and west. Russian infantrymen looked in surprise when they found only a few German soldiers staring at them—soldiers with nothing but rifles. Above us heavy *Martin* bombers went about their business without interference. All these proud divisions that had chased the Russians over the endless steppes now were frozen still, their guns silent, their remnants hugging the ground in long, thinned out lines that could do little more

than wait for the next attack and be overrun.

So it was everywhere. The Russians set their daily targets, started out in the early morning hours, and got there before the day was over—surprised at the few German soldiers who stood in their way. Often their guns went into position in full view of our lines—with no more opposition than a solitary machinegun hammering away and then stopping abruptly when concentrated counterfire found its mark. Then the Russians started their barrage, hitting where they imagined our lines to be, often hitting a line of dead men, frozen, stiff forms, that even in death caused the enemy to be wary and waste ammunition.

### Hopes, Rumors, and Plans

Many of us discussed plans how to escape before the inevitable end would come. Some saved provisions to enable them to keep going once they had stolen their way through the Russian lines. Others put on Russian uniform pieces to make detection more difficult. Our Russian "Matkas" who had been working in our kitchens offered to accompany us through the steppes and to show us how to avoid Russian outposts. Escape became an obsession with many. We stopped shaving, and our exterior was anything but military. One never knew whether his neighbor was a general or a buck private. We had become a vermin-ridden, unkempt, rankless, hungry, and desolate body of men, formerly known as the Sixth German Army.

And then rumors—always from the soldier who heard, who saw, who knew. There were phantom armies moving toward Stalingrad. There was a *landser* (the German equivalent of the American G.I.) who had learned about German tanks chasing the Russians away from Kalach. He had heard it from another *landser* whose friend had seen such a notice posted at the headquarters bulletin board at Gumrak. What he did not know was that there no longer was a headquarters at Gumrak and that no longer was there a village by the name of Gumrak—only a heap of masonry, debris, and dust.

There still was sentiment to try one last, desperate breakthrough against the southwestern front. Some of the commanders believed that the Russian front at this sector was only thinly held and that a concentration of German troops for one final, mad rush would break the iron wall around us and permit our escape in that

Street in Stalingrad

direction. However, this plan came to nought, mainly because of lack of combat-ready troops, and also because it was thought impossible to withdraw troops from other sectors for this undertaking without the Russians learning about it in time to crush the thus depleted sectors. An additional and probably the main factor against the attempt was the low morale of the troops. They had lost their fighting spirit. The generals now were practically without an army—the army was dead tired, hungry, desperate, and had lost faith.

### Mistake Is Recognized

When I next met General Paulus he had aged visibly. His face was an ashen gray; there were deep furrows in it, marks of scourging worries and woes. His once erect carriage had yielded to a sloppy

posture. His hands hung limply at his sides and his eyes showed nothing but hopelessness. He shook hands with me.

"What do you say to it all now, colonel?"

"Nothing, sir, that the other, older staff officer would not say with me."

"And what is that?"

"Sir, you should not have obeyed. Now you have missed our chance. Last November you should have struck out with your then intact Sixth Army. And after the battle you should have gone to Hitler and offered him your head. You would have become another York."

The general looked at me searchingly, then, in what looked like a confirming gesture, placed his hand upon my right shoulder and replied: "I know, and I also know that history already has condemned me."

It is worth noting here that, despite rumors to the contrary, General Paulus never had left Stalingrad to appear before Hitler, and Hitler never had come to us to see for himself.

Every tragic situation has its moments of comic relief. The "dilettante of Angerburg" (our nickname for Hitler and his headquarters in far away east Prussia) had the bad taste to shower upon our commanding officers a rash of promotions. We shook our heads in disbelief. Instead of armies, Hitler sent promotions to officers only a few steps away from Russian concentration camps. Paulus became a colonel general, presumably for staying put in obedience to Hitler's orders. His promotion to the rank of a field marshal one fortnight later was nothing but a clumsy challenge to commit suicide when the time of ruin came. For never in German Army history had a field marshal been taken prisoner. But General Paulus did not do Hitler this favor, he went into Russian captivity, with the insignia of a German field marshal on his shoulders.

At this time the chief of staff wanted to risk everything in one last concentrated attempt before the gates of Stalingrad. East of the village of Pitomnik he wanted to prepare strong new positions to stop the Russian advance. The "front" would have to be traced in the snowy wasteland of that area, and all I could find for the purpose of throwing up fortifications were two truckloads of shovels, spades, and axes. A handful of engineers served as guides in the pale winter night when the emaciated infantry started to drag themselves into these improvised lines. We had long passed the point of the possible, had missed good chances, had let them slip by merely because the Führer had other plans. Our frontlines collapsed time and again.

### Von Seydlitz Bitter

Our talks became bolder. The conspiracy grew by leaps and bounds. We talked about far away Germany, our families, we wrote letters, not knowing how to get them out, since only a few daring pilots brought their planes down. Most of them just released their provision bombs and raced back toward their home airfields. We talked about this war that nobody wanted and how it became a war by and for the Nazi Party.

At about this time I met General von Seydlitz, commander of the LI German Army Corps, with whom I had served in the same corps during peacetime. The general invited me into his bunker. He knew from his chief of staff, Colonel Clausius, my long-time friend and comrade, that I was critical of events and that fact might have caused him to speak his mind freely and without subterfuge.

He paced the bunker incessantly, talking to me at the same time. He fairly raged against the "all highest," his sense of values, his preferences for those with a Nazi twist rather than military knowledge. He condemned the orders of the Sixth Army; he could not understand why a successful general like Paulus had lost his drive, his daring, his energy.

I remember so well his last words to me: "For Germany—against Hitler."

I had never suspected so much vehemence as I encountered in General von Seydlitz. Yet he was right. Hitler went into Russia almost as if everything would be a foregone conclusion and he wound up crying for discarded winter clothing, even women's overcoats, to dress his freezing German soldiers caught in the pitiless Russian winter.

### Last Request Refused

On 22 January General Paulus asked Hitler by wireless to agree to the capitulation or the breakthrough in small groups in the direction of the Colmucks steppe and there to join the units of the First Panzer Army fighting at the Terek front. But Hitler refused the last request of the commander of a dying army.

We talked about our wives, parents, children, towns, and friends. At times we joked about a Stalingrad shield that Hitler surely would design with his own artistic hands. It no longer mattered—Russian tanks already were prowling not far from us. Captain Fricke talked to me about his young wife, about their recent honeymoon, and how he would walk all over Siberia and back just to see her again. He did not see her again. There was a major without a battalion, because his battalion had just disappeared, ground into blood and dust a little while ago. His mind had been affected by this tragedy, and he sat in a corner and stared emptily ahead.

### Sudden Orders to Leave

At about this time my telephone rang. My friend Adam was speaking. "You are flying out tomorrow as a courier."

"Yes, and back when?"

"Man, do you not know what that means? You do not come back."

I was numb for a moment, then a strange reaction took place. Yes, and what would the others say, when I leave now? Comradeship is not just a word to an honorable man. If it has welded together men in uniform in a tragic fate like ours, it has strong, very personal implications. I looked over to the major whose battalion was lost. He looked at me in a beseeching way, his eyes flickering.

Adam spoke again. "You are to report to the commanding general and his chief of staff tomorrow morning at ten o'clock." And then the reaction set in, a tumultous surge toward a new life, thanking God

Fighting at a railroad line near Stalingrad

for this last chance out of my own grave, out into the sunlight, into life.

Next morning, as I was getting ready, my orderly Blueher came into my bunker. "Sir, I have a wife and two small children at home." Then he burst into convulsive sobs. "I know, Blueher, but I cannot promise you anything—yet. At any rate, prepare your knapsack. You come along to the airfield." Blueher's eyes lit up. There was hope.

I faced Major General Schmidt, the chief of staff, for the last time. I was shocked at his change of appearance. This knightly gentleman had not shaved for days. His deep-set eyes looked emptily at me. His uniform was in need of cleaning. His hands were folded in front of him, resting on his desk, as if praying inwardly. We talked at length, and finally he rose with these, his last words to me:

"Tell wherever you deem it wise and possible that the Sixth German Army was betrayed by the all highest, and left in the lurch." Had he taken this view a few months earlier so much tragedy might have been averted.

Gumrak airfield already was under Russian artillery fire. On my way there I passed long rows of Romanian troops, a pitiful picture, remnants of the burned out 1st Cavalry and 20th Infantry Divisions. Dead, dying, wounded, and those still untouched lined the road, a most macabre frame for my last impressions before reaching the field. Colonel Rosenfeld, formerly a well-known police boxer, received me and asked me into a makeshift bunker to wait for darkness when planes could be expected to land.

The bunker was filled with soldiers. A young army chaplain entered, asking whether anyone knew where his division could be located. Nobody knew. A wounded soldier stepped up to the young minister. "Do you believe, *Herr* Pfarrer, that God wants us to die here?" "Yes, if it is His will. He has the last word in every human deed, but this word does not always have to be a 'yes.' And if He, in this dire hour, denies Himself to us, so is this a sign that our own works and deeds have not His approval." Thus spoke the chaplain, and I envied him for his simple, deep belief.

### Last Flight to Safety

At dusk we left the bunker to be near the landing apron. Not far from us we saw the flashes of Russian guns. Around us small fountains of dirt shot upward where a shell had struck. Now we heard motors—near at first, then farther away. Here it comes, a *Ju 52*, in a steep descent to make the improvised, short runway. It stopped in front of us, idling its motors because of the terrific cold. Quickly a number of men emptied the plane of its foodstuffs, medicine, three barrels of oil and 15 six-inch shells. Fifteen, when 15,000 are needed for one counterthrust!

Then they came—the wounded, the dying, the sick; and there was room for only 20 men. I had given my orderly Blueher quiet instructions to stay in the storage section of the plane. I could see the gratefulness welling up in his eyes. The soldiers milled around the plane. The military police were helpless. I carefully picked the most seriously wounded, checked their medical papers, and let them enter —only a pitiful 18.

The motors started and slowly the *Ju 52* rose. Soon we were over the Russian positions, and we saw the flashes of Russian shells. I folded my hands and I saw Blueher and the others do the same. We said thanks to God above us—and we prayed for those left behind in hell.

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**Professional competence—that is, knowledge of the art and trade of war—is not alone sufficient to meet the requirements of leadership in modern war. Knowledge can be cold and sterile, unproductive of the stimuli which drive men to victory in battle. No effective military leader has ever reached greatness by brainpower alone. The latter must be accompanied by a deep understanding of the men who, in the last analysis, are the absolute weapon of war.**

*General Maxwell D. Taylor*

# ECHOES FROM THE BAYOU

Colonel V. J. Gregory, *United States Air Force Reserve, Retired*

IN THIS era of the atom, nuclear weapons may well decide the outcome of future battles and campaigns.

However, in the Battle of New Orleans on 8 January 1815 it was a far different weapon that turned the tide of battle to the American defenders—the Kentucky rifle.

The rifle was not new to frontiersmen—it had been on the American scene since early in the 18th century and was largely responsible for the colonists' success at King's Mountain during the closing days of the Revolution. It was an accurate weapon, some three to four feet in length, weighed up to 15 pounds, and fired a .32 to .38 caliber pellet.

This was the rifle of the hunter, woodsman, and westbound settler. On the other hand, soldiers the world over adhered to obsolete muskets—Brown Bess, Brown Boy, and similar smoothbore rifles with an effective range of 75 yards; at 125 yards the round ball fell to the ground.

In the New Orleans battle, as in many previous American engagements, it was the volunteer frontiersman armed with his Kentucky rifle who achieved victory. He carried himself confidently as a resourceful, self-reliant fighter but it took superb leadership to direct his actions. Such a leader was Andrew Jackson, the tall, crag-jawed general of the Tennessee Militia. He was of the same breed as the frontiersman, rough and ready, hot-tempered, yet cool in judgment. Jackson was given the job of defending New Orleans. He established his headquarters on the Chalmette plantation—about five miles below the city, on the east bank of the river—and awaited the British.

### British Troops Hard

On 9 December 1814 the British flotilla, carrying a force of 14,000 seasoned fighters, reached Lake Borgne, an arm of the Gulf of Mexico. The invaders brushed aside light American opposition, captured five gunboats and landed at the mouth of Bayou Bienvenu, east of the city. Commanded by General John Keane, regiments advanced to occupy the Villeré, Lacoste, and De la Ronde plantations. The city was open to capture.

An immediate march on New Orleans was not deemed too important. The element of time was disregarded. From American deserters, British intelligence learned that half the city's 18,000 inhabitants had fled and that the American armed strength totaled less than 5,000. The British assumed that New Orleans was within their grasp.

British soldiers scraped rust from bayonets, polished buttons on their scarlet coats, and marched in review. In precise alignment marched Highlanders, Royal Fusiliers, the King's Own 4th Regiment, the Duchess of York's Own 14th, Monmouth Light Infantry, East Essex 44th, West India Regiment, Royal Marines, and others—all veterans of European campaigns.

***Although British courage was magnificent at the New Orleans battle, courage alone could not overcome the losses suffered at the hands of the American volunteer frontiersman armed with his Kentucky rifle***

Two days before Christmas, Jackson, learning that the British had advanced to within nine miles of the city, struck out at the enemy in a night attack. The action was indecisive yet of sufficient force to delay the hostile advance. Time was on the side of the American defenders.

### Jackson Prepares Defense

While the British were engaged in perfecting their battle tactics, Jackson strove to unite diverse elements within the city. Factional civic leaders were persuaded to put aside their differences; responsibility for the defenses of the city was placed upon Jean Baptiste Labatut, a French merchant who had served as attorney general of the city's ruling commission and as treasurer of New Orleans. The services of Jean Laffite, the pirate, were accepted. Character references were waived; survival was of prime importance.

Turning his attention to the defending force of 5,698 men on the muster roll, Jackson found that it contained only 884 Regulars. Militia units represented Louisiana, Tennessee, Mississippi, and Kentucky. A detachment of Choctaws joined the colors as well as a battery of St. Domingo Men of Color. In the Kentucky contingent, arriving four days before the battle, only one man in three was armed. There was no time for corrective action.

Jackson, one of the Liberty Boys of the West, would have welcomed the opportunity to drive the British into the gulf. He realized, however, that he could not launch an attack with the inadequate force at his disposal. His objective was to defend New Orleans and to accomplish this he decided upon a passive defense.

Placing his troops on the west edge of a canal, extending about a mile and a half between the Mississippi River on his right flank and an impassable cypress swamp on his left, Jackson directed the construction of formidable earthworks. The architect for the project was Arsene L. Latour, resident of the city. Troops were put to work erecting a thick barrier of earth, timbers, and cotton bales averaging five feet high. Across the river a contingent of militia was posted in reserve, supported by artillery. Jackson pinned his hopes upon the expert volunteer riflemen.

### Pakenham Assumes British Command

From volunteer hunting parties of riflemen who glided like shadows through the swamps and bayous, picking off enemy sentries and small detachments, Jackson learned that the British were becoming restive. As a result of these forays the British respect increased for the Kentucky rifle but they viewed the Tennessee bush fighters as savages. Equally contemptuous in the eyes of the British were riflemen from Mississippi and Louisiana, clad in brown homespun, who annoyed the British at all hours, day and night.

On Christmas Day Jackson learned that General Sir Edward Pakenham, the British general who had distinguished himself in the Peninsular War, had arrived to take over the command. The American commander respected Pakenham's ability, but was not overawed by title or military renown. However, Jackson alerted his troops for a surprise assault. It came three days later when Pakenham hurled his heavy cannon against the American ramparts. He failed to breach the position, although an assault against Jackson's left nearly succeeded.

A second attempt was made against the earthworks on the first of the year. Pakenham moved his heavy guns from the fleet

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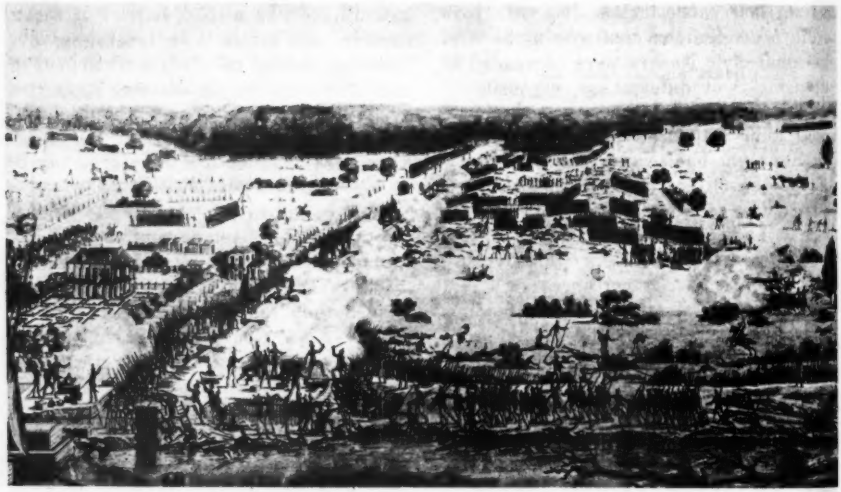
and advanced within sight of the American lines. Cannonading continued all day but the British again were forced to withdraw. Jackson's confidence expanded as his troops increased their proficiency under fire.

In the British camp provisions were becoming scarcer and coarser. Pakenham was irritated; he redoubled his efforts to



Battle of New Orleans
General Andrew Jackson's riflemen on the left pour continuous and well-aimed fire into the advancing lines of the British troops

bring the action to a speedy and happy conclusion.

### British Attack Plans

Results of previous preliminary actions convinced Pakenham that he would be unable to sweep through the American defenses as anticipated. He had no doubt as to the outcome, yet he felt the necessity of making thorough plans. He decided upon a two-pronged assault against Jackson. The main attack would be frontal against the earthworks, conducted simultaneously with a rear attack against American positions across the river. Movement of men and guns across the river required the digging of a canal from Bayou de Cataline to the river. He fixed 6 January 1815 for completion of the project.

Pakenham divided his army into three columns: General Keane of the 95th Rifle Corps to make a demonstration against Jackson's right, General Samuel Gibbs of the King's Own 4th Regiment to attack Jackson's left, and General John Lambert to remain in reserve with the 7th Fusiliers and the 43d Light Infantry. Colonel Thornton with 1,400 men of the 85th West India Regiment was given the responsibility of crossing the river to take Jackson's rear. Colonel Mullens, commanding the East Essex 44th Regiment, was ordered to carry fascines with which to fill the ditch in front of the earthworks and ladders for scaling the walls.

Jackson was kept advised of these preparations by his sharpshooting scouts. In a staff conference attended by his unit

commanders—including Generals Coffee, Carroll, and Adair—Jackson organized his forces to meet the final assault. Four lines of riflemen composed mainly of Tennessee and Kentucky Volunteers were to be formed behind the earthworks. The extreme right was assigned to the Regulars, while the left flank, extending into the swamp, was turned over to Coffee's brigade of Volunteers and Dragoons. Defense of the west side of the river was given to a division of militia. In support of the riflemen nine batteries of artillery, made up of six, 12, 18, 24, and 32-pounders, were to be placed along the line with the heaviest concentration on the right.

### The Assault

At 0100, 8 January, Jackson aroused his staff and issued his orders. Long before dawn American troops were in position, lined up behind the breastworks. They peered intently to the east but their vision was shrouded by the mist and fog which clung to the low flat terrain.

Presently their ears detected the thud of marching feet crashing through stubbles in the sugar cane field. Then the dawning sun broke through, and as the mist slowly rose, eyes caught the glint of glistening bayonets and multicolored uniforms. The British advanced in parade ground alignment, magnificent and precise.

Jackson's riflemen, fascinated by the spectacle, awaited the command to fire. Suddenly the artillery crashed, followed by the staccato bark of the rifles. The British continued to advance steadily, without a break, less than 200 yards from their objective.

From a vantage point on the parapet, Jackson adjusted his field glasses to get a view of the advancing British. They were splendid soldiers, he allowed, coming ahead through curtains of deadly rifle fire. Gaps appeared in the British columns but the momentum continued. Jackson turned his glasses to note the behavior of his own troops. They were cool, steady, and unflinching in the face of heavy cannonading.

Approximately 1,500 riflemen defended the American positions. As the first line riflemen fired, they stepped back to reload, yielding their places to those in the rear who advanced with their loaded weapons. In this manner Jackson's riflemen poured a continuous, well-aimed fire into advancing lines. Gaps in the advancing columns were filled quickly but the troops were unable to reach their objective. Gibbs, leading his men to within 20 yards of the canal, fell mortally wounded. Keane dropped. Rallying his broken formations, Pakenham was hurled from his saddle when a rifle ball struck him in the knee. Mounted on a fresh horse he continued advancing until a second ball finished his career.

British lines wavered and finally the veterans of Napoleonic wars began to retreat. A rout followed. Control was lost. Across the river the British were making some headway against American militia but were recalled by General Lambert who had assumed command.

New Orleans was saved due primarily to the frontiersman volunteer armed with the Kentucky rifle.

Within 25 minutes the long-muzzled weapon had dropped more than 2,000 British soldiers, about one-quarter of the total force that stormed the American positions. American casualties numbered seven dead and six wounded.

The frontiersman did not know how to salute but he could shoot.

# The Night Attack Blueprint for Atomic Victory

Lieutenant Colonel Robert M. Walker, *Artillery*
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IN RECENT years the need for reorganization of armies to meet the requirements of the atomic battlefield has received worldwide recognition. One of the more tangible results of this can be seen in the current international rush to accomplish the needed redesign of armed force structure. Most major powers are combining their ground arms into one type or another of integrated battle groups, doing away with the "unwieldy" divisions of World War II, and are busily discussing plans for fighting a war in the battlefield presence of the atom bomb. However, plans for the tactics these redesigned forces will employ do not appear to have made a parallel development.

The consensus seems to be that the day of the continuous battleline is over. Instead of a dug-in and strongly held main line of resistance, a defense in depth with comparatively isolated strong points is contemplated. The area between these strong points theoretically is to be covered by fire and obstacles. This much is quite clear. However, the specific tactics that the field commander will employ in the widespread battle area has, for the most part, been dismissed with the cryptic and generalized admonition that the enemy should be forced to concentrate and create a target for our atomic fire while we take great care to avoid doing the same.

Surely, the modifications required in our tactical concepts go deeper than this. If there exists a good possibility that we will fight another conventional war there is a good case for the retention of the battle-tried tactics of World War II, superimposing on them the different tactics required for a possible atomic conflict. The fact that such a war with conventional means could conceivably occur requires that the responsibility for making the final decision to employ atomics be retained by the highest national authority. The tactical usage of the atomic weapons, therefore, cannot be considered a foregone conclusion. But our announced policy of employing nuclear arms wherever necessary, coupled with the ever-increasing atomic potential of other nations, assures that any war of the future, limited or worldwide, will be fought under the ever-present threat of the employment of such weapons. A war using only conventional means would have to be fought as though it would break into a war of tactical atomics at any time; or, at the onset of the conflict, a *binding* agreement that tactical atomics would not be used must be promulgated. We must live with the first, or dare with the latter.

***The night attack presents one solution to the problem of concentrating sufficient force to accomplish a mission in atomic battle and at the same time prevent the defender from securing a lucrative target***

It follows that a conventional war between powers which possess the atomic weapons can occur only if both sides are assured that the other will not seek a tactical advantage by the surprise use of these weapons. Such assurance will most surely be lacking. Therefore, we must organize our battle positions and predicate our tactical concepts on this basis.

Let us examine the atomic battlefield from the aspects of the strong points and their relation to the problem of tactics, and then look into the tactics themselves.

### The Strong Points

The strong points in the "mobile and fluid" defense system visualized are self-contained both as to armament and personnel. They have the responsibility of helping to cover the obstacles between the strong points by fire, and of having the armament necessary for the task. Strong points in the system are separated so that one nominal atomic weapon cannot destroy two adjacent units, but the exact distance of this separation undoubtedly will remain a matter for conjecture until a battle actually is fought using atomics. Any reasonable distance, therefore, can be assumed correct for the purposes of planning and discussion.

The size of the strong points depends on the dispersion permitted within the position, and the size of the unit (numbers of men and vehicles) that the enemy will consider to be a lucrative target.

To disperse a battalion sufficiently in a circular defense position so that a single atomic weapon will not knock out a major portion of its firepower is to disperse it so much that its forces are vastly overextended; there can be little or no mutual support between companies or even platoons. As such, it would not be a strong point at all.

### Unit Strength

Considering, then, that a strong point the size of a battalion or smaller literally can be knocked out of the fight with a single atomic weapon, we must determine the smallest formation that the enemy will consider to be a minimum target for a nuclear weapon.

Having determined this point, it is obvious that a somewhat smaller unit must make up the self-contained organization with which we will man our strong points. This is a matter for practical solution on the atomic battlefield.

The Soviets currently are reorganizing their divisions with the idea of making the wartime acquaintance of the tactical atom, and are probably also looking for an answer to these questions. It can be assumed that all armies engaging in a major conflict will learn quickly, perhaps the hard way, just how many men and vehicles they can congregate before they reach the point of sufficient concentration to enemy expenditure of a "Big One."

For example, if anything over a company is a target for which either side will be willing to expend an atomic weapon, then our strong points must be of company size or less. If the size of atomic weapons in general tactical use can obliterate two strong points, provided they are less than 2,000 yards apart (to use a theoretical figure), then we must displace them by a minimum of 2,000 yards.

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Actually, if it is found that the enemy will fire atomic weapons on companies, we will use reduced companies in the strong points—if they will expend these weapons on reduced companies, we will use platoons, and so on. If the weapons actually used can destroy two strong points which are more than 2,000 yards apart, we displace our strong points by that much more distance. Under such conditions the battlefield grows and keeps growing.

For example, if we assume company-size strong points 2,000 yards apart, and taking a figure of 24 companies in our hypothetical division (there are 25 rifle companies in the Pentomic 101st Airborne Division), we find that the division's infantry alone is dispersed over an area 10 miles wide and six miles deep.

This seems so thin, from what we remember of World War II, that it appears to be no defense at all. Bear in mind, however, that the enemy is laboring under the same requirements for dispersal. Assuming an enemy division is facing our force, the infantry combat companies of the two opposing divisions are deployed over more than a hundred square miles of territory.

Two things become quickly apparent in this situation. The first is that both forces, even though one is ready to go on the offensive and the other in such circumstances that it must assume the defensive, require dispersion in their formation to alleviate the effects of the atomic threat. Thus each must take up dispersed positions as outlined above, although for the one it will mean dug-in and well-prepared defensive strong points, and for the other the strong points will more nearly resemble attack positions.

The second point is that, although strong points usually are discussed as though they were permanently emplaced defense positions, it is much more likely that the entire battlefield will be in a constant state of flux, mobility and maneuver constantly being utilized to gain positional advantage and to confuse enemy intelligence.

Having set the stage, let us now look at the action that can take place.

### The Tactics

At first thought it would appear that we are confronted with what amounts to a battlefield stalemate. While there will be occasions when smaller units will be attacked atomically because of location or mission, both sides are pretty well forced to use their weapons against concentrations of the same size. The army that is compelled to disperse into company-size strong points by enemy atomic action, while refusing to use their own atomic weapons against anything smaller than battalion-size groups, has lost the war before it starts.

Under these circumstances, how can either side attack and expect victory? Certainly we cannot expect a company, for example, to move out and successfully attack another company that is dug in defensively and has equivalent conventional artillery and air support. In many such situations in World War II we needed three or even four to one superiority to assure success.

The tactical problem resolves itself into the necessity for concentrating sufficient forces to defeat the enemy strong points in detail without presenting him the size target he needs for his atomic weapons. Can this be done where the enemy can detect it, and, if not, how do we conceal it?

If such an attack is to be made where the enemy can observe our force before it is in close protective contact with the enemy position, the necessary force must be assembled, the attack successfully completed, and dispersal again effected before he can employ his atomic weapons. Although this *might* be possible today with the present relatively cumbersome and slow methods of target selection and analysis, in the future both sides will un-

doubtedly have developed methods by which atomic weapons can be brought into play as accurately and as quickly as conventional artillery was a decade ago.

Excluding the use of smoke, camouflage, concealment, and times of low visibility due to weather it appears that an attack by a concentration of troops large enough to overrun one of the strong points under consideration must be made under cover of darkness.

Our theoretical and academic situations generally seem to prefer the daylight or dawn attack to the night attack, but the successful night attacks that have been undertaken in recent history have been so numerous as to question if they are sufficiently accented in our service schools. In the atomic situation an understanding of the conduct of night attacks will be of vital necessity to the frontline commander.

### The Night Attack

The principles presently taught for application in the night attack include the necessity for detailed reconnaissance; warnings about the difficulty of control, especially of tanks; the fact that night attacks can gain surprise, and reduce casualties (surely this strikes right to the heart of the tactical requirements of the atomic battlefield); and that such attacks usually are made by comparatively small units to take well-defined but limited objectives.

A study of the night attacks actually conducted during World War II indicates that only the detailed reconnaissance is a *must*—and even this was not always done in fast-moving situations. Tanks frequently were used by large units in night attacks; in many cases with distant, multiple, or poorly defined objectives; and, in a few instances, with virtually no objective at all except that of penetrating the enemy lines.

On 15 March 1945 the 45th Infantry Division made a passage of lines and conducted a frontal assault on an estimated 1,300 well dug-in troops using searchlights to maintain the direction of attack. The result was complete success.

During the Battle of the Bulge in Belgium, the 2d Armored Division attacked and took three towns in absolute darkness with complete success.

In August 1943 the Canadian II Corps attacked a well-prepared position with tanks in a night penetration. Again, the result was complete success.

In March 1945 the 10th Armored Division attacked the communications center of St. Wendel, using searchlights for illumination. Result—complete success.

On one occasion in 1942 the Russians moved their tanks into combat directly from the march formation and continued the advance in darkness, illuminated only by the headlights of the tanks. The result was success against an enemy who was caught in the act of withdrawing.

On the night of 1 January 1942 the British in Africa made a night attack with two regiments supported by armor to capture the town of Bardia. Flashlights were used to guide the tanks. Result—complete success.

It is certainly worthy of note that in the well-documented night attack at El Alamein over 1,000 tanks were employed in the assault, and in the night attacks which continued through the Battle of the Bulge the Germans employed 14 infantry and 10 armored divisions.

Of particular interest was the Russian use of the night attack. They crossed the Dnepr River at night without the use of bridging equipment, and in 1943 accomplished another major river crossing and a decisive breakthrough of German lines with tanks at night. Later, in 1944 they often used tanks to effect a night penetration followed by a rapid exploitation at dawn. When German forces were compelled to group their available troops into strong points due to reduced strength, the Soviets made night penetrations almost

at will with units up to a division in size. This should be food for thought in the designing of tactics for the atomic battlefield.

One of the amazing facts which comes to the attention in considering these and other night attacks is the comparatively large number of times tanks were involved in the operation. Certainly it is true that tanks are harder to control at night, but it is of even greater importance to note that the reduced visibility will greatly decrease the accuracy of recently developed and extremely effective, but *visually controlled*, antitank weapons.

The frequent and decisive night attacks of the Soviet forces against the "strong point" defense of the Germans in World War II indicates that the night attack has a definite place in their doctrine. Whether we adopt the night attack as standard practice or not, certainly we must study its employment seriously, for if history is any guide, in warfare of the future, it is quite likely to be used against us.

In the Korean war, the North Korean and Chinese Communist forces frequently employed the tactics that had served Mao Tse-tung so well for the conquest of China —approach marches under cover of darkness, infiltration, and probing night attacks. The well-remembered "human sea" attacks of these armies were launched almost invariably at night.

It has been said that the North Korean forces used the night attack to avoid the effects of United Nations airpower. The tactics the Communist armies used to nullify the difference in air support were also the tactics that would have made it most difficult for the UN forces to have employed atomic weapons tactically against them. Here is a lesson of the past that is directly applicable to the battlefields of the future.

### Conclusion

The availability of atomic weapons to battle forces has necessitated a modification of tactical concepts as no other weapon has ever done. It demands dispersion in defense and attack which poses the special problem to the tactical commander of concentrating sufficient force to accomplish his mission in such a way as to avoid presenting the defender with a lucrative target for his atomic effort. The night attack presents one solution to this problem.

The methodology of accomplishing a successful night attack is merely a matter of training. The important thing is to recognize the necessity of being ready to apply this effective method of combat. In a situation where the principle of *mass* is literally turned inside out and becomes a principle of *dispersion*, the night attack will become not the unusual, but the normal.

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**The imposing array of responsibilities which rest upon our Army today is matched by its impressive accomplishments in the development and employment of new weapons, modern equipment, streamlined organization, and atomic battlefield tactics. The Army is fully abreast of the rapid evolution of modern warfare. It has promptly seized upon each advance of technology to ensure that it will be fully able to accomplish its mission under any circumstances.**

*Secretary of the Army Wilber M. Brucker*

# The Challenge to Military Thinking Today

Colonel Hewitt D. Adams, *United States Marine Corps*
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TECHNOLOGY recently has made available to the military new weapons, new vehicles for mobility, and new concepts of world geography. These changes, coming within a few years of World War II, have forced the military to a consideration of new equipment and its effect on military operations almost to the exclusion of all else. The development of new techniques and tactics to accommodate the changes now appears to have reached a point of implementation rather than conception. While much work remains to be done, the need for original thinking about weapons systems is less and the need for evolution greater.

While the changes in tactics and techniques of military operations have continued, another factor has appeared which may more vitally affect military thinking. The new weapons systems coupled with the announced aims of world communism pose a military problem which is unprecedented.

In the past the armed forces could be designed to cope only with the greatest threat to a nation's security. Such forces could be expected to be effective against lesser threats. Military operations were an end in themselves, to be undertaken after politics had failed and with victory as their objective. Military and political thinking was divergent. The military man prided himself on his insulation against political considerations.

This condition no longer seems to exist. The challenge to the military is to understand political conflicts and the role of military power in their resolution. Victory as understood in the past seems out of date and needs to be redefined in terms of political objectives. Forces must be tailored to meet foreseeable needs. No longer can forces tailored to meet the maximum threat be used to meet lesser threats successfully.

As long as a strategic (thermonuclear) air capability exists in each of two opposing power blocs, a stalemate with regard to *that* form of warfare well may exist for an indefinite period. The entry of the intercontinental ballistic missile (ICBM) into the picture would increase rather than decrease the probability of a stalemate—for then it would be almost impossible to destroy the enemy's retaliatory capability.

If strategic air warfare is becoming less and less likely, what can we expect of future warfare? The aims of international communism have not changed. They are constantly reiterated by the party leaders in Moscow. The pattern of action by which these aims will be realized is set forth clearly in the writings of Marx, Lenin, Stalin, and Mao Tse-tung.

### War of Nerves

We can expect militant communism to be opportunistic, to exploit every area of stress within the free world, and to avoid presenting such a clear threat as to incite all-out war. A gigantic war of nerves, or cold war, with occasional tests of resolu-

***It is the statesman's role to determine our political objectives; the role of the military is to furnish the statesman, when required, a discrimination in the use of force for the attainment of the objectives***

tion on both sides appears to be the most likely course of events. To play successfully in this poker game, a player must have strong nerves and a power position which can withstand the calling of any bluff. The challenge to the military thinking might be restated as the provision of a power position which will support and reinforce the political objectives of the Nation.

The ultimate political objective of the free world is undoubtedly "peace." This cannot mean "peace at any price," for such is not peace at all.

Our ultimate objective of "peace," or an international order which can live in harmony, can be attained only by a power position which permits us to meet challenges to the international order *which do not directly affect our national survival.* This position must be coupled with a willingness on our part to apply the necessary degree of power quickly and positively in accordance with a well-defined political objective.

### Know Political Objectives

Such an application of power can be accomplished only with means kept constantly at hand. The first task of military thinking, in order to meet today's challenge, is to understand clearly the political objectives of the Nation. This imposes a more intensive study of and working with political considerations than has ever before been the case.

### Composition of Forces

Since the application of power in situations short of general war will have to occur quickly and decisively to be effective, the composition of our forces is a matter of utmost concern. Only a thorough understanding of political objectives, conditions under which force will be used, and the degree of such force necessary will permit the attainment of a structure which will meet the requirement. Where the statement of our political objectives is not sufficiently clear to permit this, it is the duty of the military to press for such a clear statement. Civilian leadership must depend on military thinking, which is based on a thorough political understanding, in order to develop the optimum force structure which will establish the Nation's power position.

### Application of Power

The third task of military thinking has to do with the application of power once its use has become necessary. Political objectives must remain uppermost with military operations tailored to their achievement.

Adherence to this point will occasion the greatest revolution in military thought. A lack of decision in any contest is incompatible to American thinking. We are conditioned throughout life that there should be a winner and a loser. Our military teaching is that we must close with the enemy and destroy him (or at least destroy his will to resist). A major frustration to the military in Korea was the restriction placed on the fighting by political considerations. This condition is apt to be the rule rather than the exception in the future. Military operations must be so conducted as to encourage the attainment of political objectives and to place the enemy in a position where he

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has *more to lose* by continuing the conflict than by acceding to our objectives.

*This implies a degree of finesse in applying military power which has not been required previously.* The enemy must not be placed in a position of desperation where his only recourse is to enlarge the scope of the conflict. He must not feel that his national existence is at stake. Still, the application of military power must be such as to leave no doubt that a settlement of the conflict is in his best interest. Psychology will play a greater part in conflicts of the future than has even been so in the past. The commander must be able to assess properly the effect on the enemy of the application of power and must apply that degree of force which will induce the enemy to accede to our demands—our political objectives.

### Less Objectivity

The last task of military thinking to meet today's challenge is to change the degree of reliance on objectivity. Being objective implies dealing only with facts with certainty the result. The moment we leave the known world of today and begin to deal in the future, objectivity commences to lose its validity. There is no substitute in battle for the feel of knowing the time and place where the scales may be tipped. This is true of the campaign as well. The "art" of war consists in the recognition of such an intangible. With the increase in finesse which will be required in future conflicts—short of the thermonuclear holocaust—the "art" will assume even greater importance than will the "science" of war. It is true that the operation of the weapons systems by means of which wars are fought is becoming more technical, but the direction of those systems to achieve a desired result is becoming more of an art.

*It is the role of the statesman to determine our political objectives and the paths we will follow to attain them. It is the role of the military to furnish the statesman with a means and a discrimination in the use of force so that the statesman may fully exploit the paths which lead toward attainment of the objectives. Only if military thinking meets its challenge can our ultimate objective of 'peace' be attained in the face of militant communism.*

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**Security from military aggression is a relative and inconstant condition toward which we strive but seldom achieve. There is no yardstick that one can apply mathematically to a nation and say categorically: 'This is adequate' or 'that is sufficient' for our security.**

**Development of sound, long-term security requires stability—stability which is not materially disturbed by every psychological effort of unfriendly nations, or by wishful thinking on our part.**

**It also requires that we design our forces so as to assure a steadily increasing efficiency in phase with modern scientific advances. In no sphere of life is there greater activity and progress than in those matters which pertain to war.**

**In this regard, whenever our research and development programs produce improvements in weapons which indicate changes in warfare, the services change the emphasis as rapidly as it is safe to do so.**

*Admiral Arthur Radford*

# MILITARY NOTES AROUND THE WORLD

## UNITED STATES

### *Divisional Reorganization*

Divisions reorganized or planned for reorganization into the Pentomic concept include the 1st, 3d, 4th, 7th, and 25th Infantry Divisions, the 1st and 4th Armored Divisions, and the 11th, 82d, and 101st Airborne Divisions. It is planned that within the next two years all Army divisions will be reorganized into the five-sided atomic-armed units.—News item.

### *'Nike' Warhead*

A newly developed atomic warhead for the *Nike-Hercules* surface-to-air missile (MR, Jul 1957, p 68) is claimed to be capable of destroying not only an enemy bomber but also the nuclear weapons it is carrying. It has been reported that the Army plans to have a total of 250 *Nike* battalions by 1961.—News item.

### *Missile Submarines*

The launching of the *Skate*, the Navy's third atomic-powered submarine, and the *Grayback*, the first underwater craft to be built for initial commissioning as a guided missile submarine, has been announced. The *Skate* displaces about 2,400 tons, as compared with the 3,200-ton weight of the two other atomic submarines, the *Nautilus* and the *Sea Wolf*. It is 265 feet long—about 60 feet less than her predecessors. The conventionally powered *Grayback*, built to launch the *Regulus* missiles, differs from the earlier guided missile submarines in that it was designed from the keel up as a guided missile carrier, while the other two were converted from conventional undersea vessels. Two other guided missile submarines under construction are the conventionally powered *Growler*, and the *Halibut* which will be the first nuclear-powered submarine ever designed from the keel up as a guided missile carrier. The *Regulus I* missiles with which the submarines are to be armed are also in use by four cruisers and four aircraft carriers of the fleet.

The *Regulus I* is a surface-to-surface missile with a speed slightly less than the speed of sound, and a range of 250 miles. The 7½-ton missile is propelled by a turbojet engine and uses two solid propellant boosters.—News item.

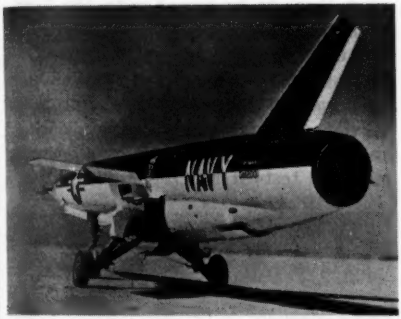
### *Mechanical Translator*

An electronic computer called the MIDAC (Michigan Digital Automatic Computer) translates Russian scientific fact into English. Dealing strictly with the language of theoretical or experimental physics, the magnetic drums of the computer have recorded 64,000 Russian words and their English equivalents. As an op-

erator types off a Russian scientific paper, the machine automatically types out the English equivalent.—News item.

### Missile Progress

The first air-to-air rocket to be tested with an atomic warhead has been identified as the *MB-1 Genie*. Details as to its characteristics have not been announced, except that it has no built-in guidance mechanism. The atomic rocket was launched by an *F-89 Scorpion* jet fighter, and detonated by an electronic ground-



***Regulus II* test vehicle**

controlled sequence timer at an altitude of over 15,000 feet.

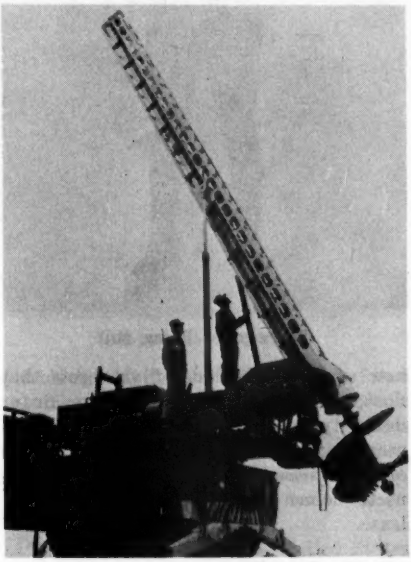
The *GAR-2A Falcon*, an improved version of an earlier air-to-air missile (MR, May 1957, p 64), utilizes infrared guidance rather than the radar control of the first rockets of this type. This new missile is in use by the Air Defense Command in its supersonic *F-101B* and *F-102* interceptors and the subsonic *F-89 Scorpion*. It can be fired singly, but is usually used in salvos up to six and has a range of more than five miles. In tests it has demonstrated an accuracy of 80 to 90 percent.

An improved version of the *Matador* missile is designated the *Matador TM-61C*. It has a greater range and contains an improved guidance system that is said to be highly resistant to electronic countermeasures. The new model is 39.6 feet long and 54 inches in diameter. It operates at a speed of more than 650 miles an hour, and is capable of performance at altitudes of more than 35,000 feet.

*Regulus II*, a bigger, faster, and longer-range development of the *Regulus I*, is currently in the test flight stage. Test vehicles of this model have been equipped with landing gear to facilitate recovery for reuse.—News item.

### Huge Earth Auger

The tungsten carbide teeth of the Army Engineers' earth auger can cut a hole 20 feet deep and six feet in diameter in 40 minutes. Vehicular mounted, the 25-foot boom of the auger is raised for operation



**Experimental earth auger**

by hydraulic lift. Major difficulty in employment of the auger, which operates on the centrifugal force principle, is in the disposal of spoil. The possibility of using high-speed jets of compressed air for this purpose is being explored.—Official release.

### *Supersonic Flight Gear*

A three-piece flying suit and helmet has been developed to afford maximum protection and comfort to pilots of supersonic planes. The new flight gear combines protective features previously embodied in five different suits into one garment. Other

Three-piece flying suit

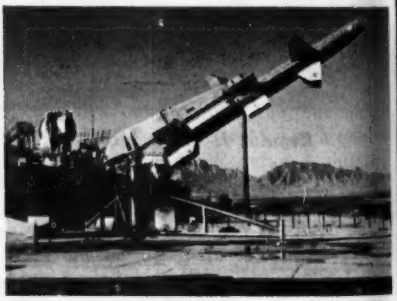
new equipment includes flight boots that float, two-piece gloves for greater finger dexterity, and a helmet that permits increased visibility and mobility by virtue of a ball-bearing sealing ring that connects helmet and suit.—Commercial release.

### *Missile Coordinator*

The *Missile Master* electronic system used in controlling and coordinating fire of *Nike* antiaircraft batteries also will control the recently announced *Hawk* low-altitude air defense missile and other advanced Army air defense weapons as they become available. The integration of the *Hawk* and *Nike* operations is considered essential to assure an all-altitude defense against aerial attack.—Official release.

### *Guided Missile Cruiser*

The *Cleveland* class light cruiser *Galveston CL 93* has been redesignated the *CLG 93* and is undergoing conversion to *Talos* surface-to-air missiles as its main armament. The 10,000-ton *Galveston* is 600 feet long and capable of a speed of 33 knots. Five other light cruisers of this class are scheduled for conversion to missiles, three to be armed with the *Terrier* antiaircraft missile (MR, Aug 1957, p 69), and the two other converted cruisers will carry the *Talos*. The *Talos* missile is ramjet-propelled and utilizes a solid propellant booster. It attains a speed of Mach 2.5 and has a reported range of 45 nautical miles. In tests it has registered kills at a



Surface-to-air *Talos* guided missile

range of 25 miles and is said to have a high degree of accuracy and reliability at even its longest range. Without its booster, the *Talos* is 10 feet long, 18 inches in diameter, and weighs slightly less than a ton.—News item.

### *Marine Assault Aircraft*

A new four-engine assault aircraft known as *Model 1906A*, capable of operating from an aircraft carrier, is in the advanced design stage. It can carry a 15,000-pound payload a distance of 1,500 nautical

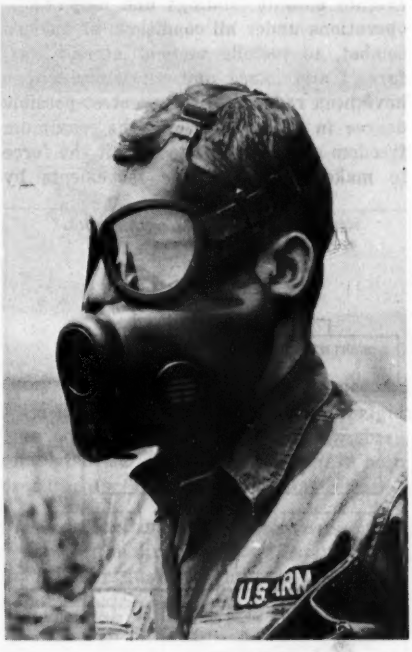
miles. Despite the fact that it has a wingspread of more than 100 feet and a gross weight of 65,500 pounds, as many as 12 to 15 of the big planes can be arranged on the flight deck of an angled deck carrier and still allow flight operations. It can carry a maximum of 58 combat troops, and attain a speed of up to 315 miles an hour. Equipped with quickly detachable skis, the *1906A* is able to operate in and out of muddy fields, sandy beaches, or snow-covered runways with a takeoff length of 400 feet. The ski arrangement does not interfere with operations from carriers or prepared fields. The short takeoff and landing characteristics are provided by high-lift flaps and the reverse thrust of its 14-foot propellers. The cargo compartment is capable of taking an object 15 feet by eight feet, and is equipped

***Model 1906A* assault aircraft**

with an integral truckbed-height loading ramp. The aircraft is designed so that it can, if necessary, be carrier-launched with landing gear retracted. It can make a conventional carrier takeoff with one engine inoperative or a catapult takeoff with only two engines functioning.—Commercial release.

### *Streamlined Gas Mask*

A revolutionary type gas mask that will provide protection against war gases, germ warfare agents, and airborne radioactive fallout is undergoing rigid tests to determine its acceptability as a standard protective measure. The bulky canister of previous masks is replaced by pads of




**All-purpose gas mask**

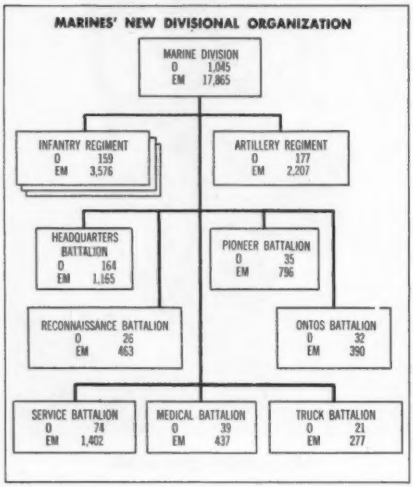
pliable gas-aerosol filter material fitted into the facepiece of the new protective device. It is expected to provide a high degree of protection with maximum comfort to the wearer.—Commercial release.

### *Alien Enlistments*

The act that permits the United States Army to accept selected noncitizens for five-year enlistments has been extended to June 1959. Under this program 1,302 aliens have been enlisted since 1951. Of 305 alien enlistees whose terms have expired, 140 have reenlisted. All of the reenlisted aliens have been naturalized or have applied for citizenship.—News item.

### *Marine Division Reorganized*

The redesigned divisional structure of the Marine Corps, currently under test, was developed to enhance its capacity to execute assault landings and amphibious operations under all conditions of modern combat, to include tactical atomic warfare. Maintenance and service functions have been reduced to the greatest possible degree in order to assure the maximum freedom of action and to permit the force to make rapid strategic movements by




limited air, sea, or land transportation. Major changes will increase the capability for continuity of command and control under atomic attack and reduce the division's dependence on land lines of communication. It is expected to facilitate greatly the establishment of subordinate task groups for accomplishing specific missions. The antitank capabilities have been increased, although the offensive power of the tank has been lost through elimination of the division tank battalion. Despite an over-all 10 percent personnel reduction, the new division has a greater reconnaissance capability and an increased infantry strength. All assault elements of the new organization are helicopter transportable, and the entire division is air transportable.—News item.

### *Aerial Navigation Systems*

The Navy's automatic navigator for high-speed jet-powered flight, the *APN-67*, is a 200-pound device which gathers data through an air-ground radar system and presents it in a visual display for the pilot or navigator. After 10 years of research the system has been tested extensively and is now in production.

The Air Force has announced a virtually automatic control system for the *B-58 Hustler* which is said to be able to compute instantaneously the aircraft's position anywhere in the world, and furnish accurate data for the release of the detachable pod carried by the *B-58* (MR, May 1957, p 63).

"Electronic road maps" for helicopters that will permit the vertical lift aircraft to operate completely on instruments anywhere, regardless of weather or visibility conditions, have been announced. The self-contained instrument landing system is claimed to provide pilots with the necessary information to enable them to take off, fly to any spot within a 100-mile range, make an instrument approach to within 10 feet of the ground, and land without looking outside the helicopter cabin.—News item.

### *Atomic Merchant Ship*

The keel of the United States first atomic-powered merchant ship will be laid in 1958. It is planned that the vessel will be launched in 1959. The 21,000-ton passenger-cargo ship will be 587 feet long, with a 78-foot beam and 29½-foot draft. It is designed to carry more than 9,000 tons of cargo, and will have 30 cabins for passengers. The propulsion plant will consist of a steam turbine unit driving a single propeller. The vessel will be equipped

with a diesel engine for use in event of a failure of the nuclear power source. Construction of the atomic ship is expected to cost about 42.5 million dollars and it has been estimated that it will be able to cruise 350,000 miles without refueling.—News item.

### *Largest Land-Based Plane*

The *XC-99*, the world's largest land-based aircraft, has been declared surplus to the needs of the Air Force. The *XC-99*, which cost 15 million dollars to build, has been in use for seven years, and costs about $1,100 an hour to operate and maintain. The aircraft, a cargo version of the *B-36* bomber, has a wingspread of 230 feet. It was designed to carry 400 troops or 305 litter patients when acting as an

Giant cargo plane *XC-99*

ambulance plane. During its service the big plane carried 30,000 tons of cargo and covered a distance of 1,486,000 miles.—News item.

### *Lightweight Pneumatic Boat*

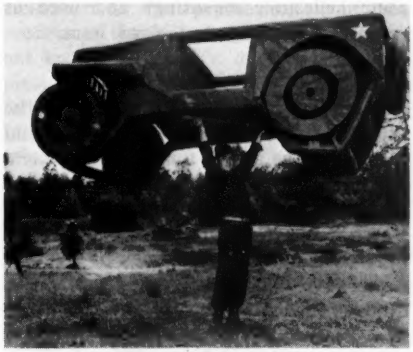
An air-inflatable assault boat capable of carrying 15 men in river-crossing operations can attain speeds of seven miles an hour with an outboard motor, or about three miles an hour when paddled by hand. As a safety measure, the 18-inch-diameter main flotation tube of the craft is divided into six compartments, and it can continue in action with as many as four of the compartments damaged. It weighs 255 pounds complete with equipment and can be dropped by parachute. When inflated, it is 17 feet long and five feet eight inches wide. Due to its lightweight and pneumatic construction, more than twice as

Inflatable assault boat

many inflatable boats can be carried on a 2½-ton truck than the conventional rigid type boats. Engineering tests have been completed, and additional boats have been procured for troop use.—Official release.

### *Pneumatic Dummy Vehicles*

Among the air-inflatable dummy devices in use for instructional purposes is a pneumatic jeep so light it can be lifted



Inflated dummy jeep

by one man. The pneumatic dummy devices are capable of quick and easy inflation in the field.—News item.

### *Supply Concept*

A new concept of gasoline resupply for armored divisions will incorporate a series of steel and rubber pipelines, collapsible storage tanks, and tank trucks. A group of permanent tanks located behind the front-lines will act as a source of supply for the flexible system. The gasoline will be picked up from the pipeline by 5,000-gallon tank trucks. These will transfer the fuel to smaller motor transports which will carry the gasoline direct to units in the field.—News item.

### *Helicopter Armament*

Two different ground fire suppression kits have been perfected for use by helicopters in combat. One kit consists of two .308-caliber machineguns attached to the sides of the helicopter and controlled by a hand-grip firing mechanism in the helicopter cockpit. The other kit, which is attached to the helicopter undercarriage, is a package containing two machineguns and eight 3.5-inch rockets. Both kits are simple in construction, lightweight, and can be installed quickly. If necessary the machineguns can be removed easily from their helicopter mountings and used as regular field weapons.—News item.

### *Durable Battery*

A tiny dry cell battery nicknamed the *Mighty Midget* is enclosed in a metal case about the size of a man's wristwatch, and is rechargeable. Developed for use in the control units of missiles and underwater mines, the midget battery delivers nine-tenths of a volt of power and has a capacity of 1½ ampere hours. Tests have shown that the battery works equally well at subfreezing and roasting-hot temperatures, and is highly resistant to shock and vibration. It can be stored for long periods of time in an uncharged state, and is expected to have a useful life of over 10 years.—News item.

## SPAIN

### *Destroyers Received*

Two *Fletcher* class destroyers, the *Capps* and the *David W. Taylor*, have been transferred to Spain by the United States on a five-year loan as part of the agreement under which the latter is constructing bases in Spain (MR, May 1957, p 72). The vessels are armed with standard 21-inch torpedo tubes and hedgehog antisubmarine weapons. The depth charge racks with which the destroyers were originally equipped have been replaced by side-launching torpedo racks. They are capable of a speed of 35 knots. The Spanish Navy plans to use the vessels for training purposes.—News item.

## PUERTO RICO

### *Missile Training Center*

Roosevelt Roads naval base, in eastern Puerto Rico, is being developed as a center for training in missile firing. Missile firings conducted here will be of the surface-to-air type—the first missiles are expected to be fired within the next year. The development program includes 1,900 feet of new runway for naval planes, new barracks and shop facilities, and expansion of the electrical system. Among the other facilities available at this base is a drydock big enough to take supercarriers of the *Forrestal* class.—News item.

## FINLAND

### *Speedy Patrol Boats*

Two fast patrol boats, built in England for the Finnish Navy, have been named the *Vasama I* and the *Vasama II*. The 70-ton vessels are 71 feet long, and each is powered by two 2,500-horsepower *Napier Deltic* diesel engines which give them a speed of 40 knots. They are armed with two 40-mm guns each, and are fitted with the most comprehensive and modern navigation and communications equipment.—News item.

## JAPAN

### *US Ground Forces Depart*

The transfer of the 9th Marine Regiment to Okinawa leaves United States forces in Japan one Marine air wing of about 6,400 men, 7,000 Navy personnel, Air Force units with a strength of 50,000, and 17,000 Army support and caretaker troops. All US ground troops are planned for withdrawal from Japan by the end of 1957.—News item.

## TURKEY

### *Construction Program*

Eleven new airfields are to be built in Turkey within the framework of the NATO infrastructure program. When the present program is completed, Turkey will have 22 airfields, more than 1,240 miles of pipeline, storage reservoirs for 71 million gallons of fuel, and 8,700 miles of communications network. In addition, port facilities and numerous radar installations are under construction. Turkey has been allocated approximately 252 million dollars from the joint NATO infrastructure program up to and including 1957.—News item.

## PORTUGAL

### *Warship Received*

The *John C. Butler* class escort vessel *DE-509 Formoe* has been received by Portugal from the United States, and renamed the *Diego Cao*. Warships of the *Butler* class displace 2,100 tons, and are capable of a speed of 24 knots. They are armed with two 5-inch guns, and two 40-mm and six 20-mm antiaircraft weapons.—News item.

## EGYPT

### *Submarines Identified*

Two of the submarines recently delivered to the Egyptian Navy by the USSR have been reported to be of the long-range *W* class of Soviet submersibles and the other is of the coastal *M* class.

Submarines of the *W* class displace 2,900 tons submerged, and are 320 feet long. They can attain a speed of 20 knots on the surface and 16 knots submerged, and have a range of 20,000 miles. Information concerning their torpedo armament is not available, but on-deck armament includes two 3-inch turret-mounted weapons.

The *M* class submarines are small coastal vessels of limited range. They are armed with two torpedo tubes, and can attain a speed of 13 knots.—News item.

## COMMUNIST CHINA

### *Chinese-Built Jets*

It has been reported that the Communist Chinese Air Force is now operating jet fighters that were manufactured in China. Previously it was reported that the Chinese were assembling *MiG-17* jet fighters from component parts supplied by the Soviet Union (MR, Feb 1957, p 70).—News item.

## AUSTRALIA

### *Prefabricated Frigates*

The first of four new, fast, prefabricated antisubmarine frigates is under construction. The prefabrication of the sections of the hull of this vessel, at present known only as *Nr. 04*, has been completed. The sections will be assembled and joined together by welding. The vessel is expected to be launched in 1958.—Official release.

## BELGIUM

### *Fighters Ordered*

The Belgian Air Force will receive 53 *CF-100 Mk. 5* all-weather fighter aircraft under the mutual security program. The *Mk. 5* version of the Canadian-designed-and-built *CF-100* differs from earlier models (MR, Nov 1956, p 80) in having additional wing and tailplane areas for improved performance at high altitudes.—News item.

## FRANCE

### *Naval Strength*

The French Fleet currently has commissioned vessels totaling 383,000 tons. This includes two battleships, the *Richelieu* and the *Jean-Bart*, both of which displace approximately 49,000 tons fully loaded, and three World War II aircraft carriers. Two of the carriers are the *Bois Belleau* and the *La Fayette*, units of the United States *Belleau Wood* class of fast, light fleet carriers transferred to the French Navy, and the other is the *Arromanches*, formerly the *HMS Colossus*, a 13,190-ton vessel purchased from Great Britain in 1951. Other World War II warships still operational are the two *Gloire* class cruisers, the *Georges Leygues*, and the *Montcalm*, and the cadet training cruiser *Jeanne d'Arc* which is scheduled for replacement by a helicopter carrier now under construction.

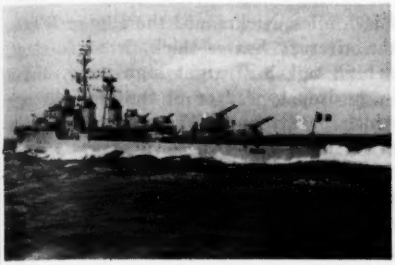
**Added to French Fleet Since 1951**

| Type | Name | Tonnage |
|---|---|---|
| Antiaircraft Cruiser | De Grasse | 8,000 |
| Destroyers T-47 Type | Surcouf<br>Kersaint<br>Cassard<br>Bouvet<br>Dupetit-Thouars<br>Chevalier Paul<br>D'Estrees<br>Vauquelin<br>Maille-Breze<br>Casabianca | 2,750 |
| Destroyer-Escorts E-50 Type | Le Corse<br>Le Bestois<br>Le Boulonnais<br>Le Bordelais | 1,250 |
| Minesweepers Sirius Type | 17 | 400 |
| Destroyer-Escorts | Le Normand<br>Le Lorrain<br>Le Picard<br>Le Gascon<br>Le Bourguignon | 1,250 |
| Coastal Patrol Craft | 9 | 350 |
| Minesweepers | 12 | 400 |
| Minesweepers MSO | 15 | 700 |
| Minesweepers MSC | 30 | 370 |

**French Naval Vessels Under Construction or Fitting Out**

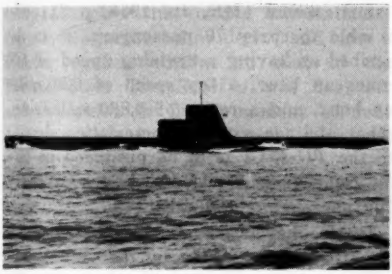
| Type | Name | Tonnage |
|---|---|---|
| Aircraft Carrier | Clemenceau<br>Foch | 22,000 |
| Antiaircraft Cruiser | Colbert | 8,500 |
| Destroyers Type T-47 | Du Chayla<br>Guepratte | 2,750 |
| Type T-53 | Duperre<br>La Bourdonnais<br>Forbin<br>Tartu<br>Jaureguiberry | 2,750 |
| Type T-56 | La Galissonniere | 2,750 |
| Destroyer-Escorts | Le Breton<br>Le Basque<br>Le Bearnais<br>L'Agenais<br>L'Alsacien<br>Le Provencal<br>Le Vendeen | 1,250 |
| Escort Vessels Union Francaise Type | 7 | 1,650 |
| Submarines | | |
| Narval Type | 6 | 1,440 |
| Daphne Type | 6 | 750 |
| Argonaute Type | 6 | 530 |
| Coastal Patrol Craft | 11 | 350 |
| Minesweepers | 4 | 400 |
| Coastal Launches | 12 | 80 |
| LST | 1 | 1,500 |
| LCT | 6 | 250 |
| Destroyer-Escorts * | Le Champenois<br>Le Savoyard | 1,250 |
| Minesweepers * | 5 | 400 |
| Helicopter Carrier ** | 1 | 10,000 |
| Submarines ** | 3 | 750 |
| LST ** | 2 | 1,500 |

* To be built with United States credits, all other budgeted for by France.
** French naval budget for 1957.



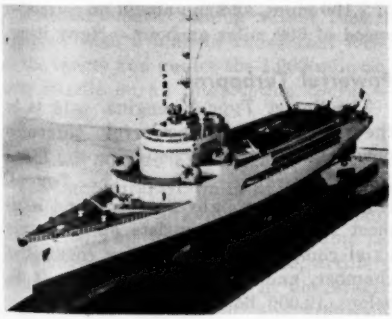
*Maillé-Brezé, Surcouf* class destroyer

Aircraft carrier *Arromanches*

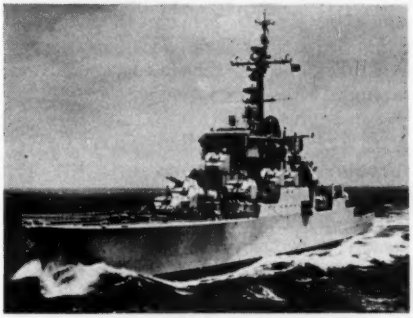


Long-range submarine *Narval*

The battleship *Richelieu*



Model of helicopter carrier



Antiaircraft cruiser *De Grasse*

Modern ships built since 1951 include 45 *MSO* and *MSC* type minesweepers built in the United States and transferred to France, and the French-built antiaircraft cruiser *De Grasse*. The 8,000-ton *De Grasse* was ordered built in 1937, and completed after World War II. Armament of this vessel consists of 16 five-inch antiaircraft guns, and 20 Bofors 57-mm weapons in twin mounts. Other postwar construction ships of the operational fleet are generally of the destroyer, destroyer-escort, and minesweeper types.

Under construction or being fitted out for the French Navy are 90 new vessels. These include another antiaircraft cruiser,

the *Colbert*, a 10,000-ton helicopter carrier planned for completion in 1961, and the *Q244*, an atomic submarine which officially was reported to be in the blueprint stage in May 1957.

By 1963 it is planned that the French Fleet will consist of a total of 300,000 tons of combat ships and 60,000 tons of amphibious and auxiliary vessels. Conventional warships will include three medium aircraft carriers, two antiaircraft cruisers, 19 destroyers, 18 destroyer-escorts, and an underwater fleet of fast conventionally powered submarines.

The French naval air arm has 832 operational aircraft, of which 397 are of foreign manufacture. Two of the eight embarked flotillas are equipped with the 600-mile-an-hour *Aquilon* jet fighters, the French-built version of the British *DH-112 Sea Venom*. The other six flotillas have *F4U Corsairs* and Grumman *Avengers*. The seven land-based flotillas of the naval air force utilize British *Lancasters* and *Sunderlands*, and United States *Neptunes* and *H-21* assault helicopters. An additional 173 aircraft are under construction in France and are scheduled for delivery through 1960.—News item.

## USSR

### *Airpower Developments*

New aircraft under development and test by the Soviet Air Force include an assault transport, a four-engine swept-wing bomber, and several big airliners.

Described as an improved *Badger* class plane, the swept-wing, four-jet bomber is said to be roughly comparable to the United States *B-47* medium bomber.

The *AN-8* assault transport weighs 44 tons and can carry a payload of a little less than 10 tons. It is powered by two turboprop engines of 5,100 horsepower each, and has a service ceiling of 30,000 feet. It is reported to have a speed of about 320 miles an hour, and a range of 2,500 miles. Nicknamed the *Flying Whale*, the aircraft has a thick, wide fuselage, a high tail, a straight high wing, and a large drop type door at the rear through which paratroopers or equipment can be dropped.

The *Moskva Il-18* airliner is driven by four turboprop engines, and is reported to have a cruising speed of more than 370 miles an hour, a range of 3,100 miles, and a capacity of 58 tons.

The *TU-104A* is an improvement of an earlier model (MR, Jul 1956, p 71) and is able to carry 70 passengers. It is described as having a cruising speed of 500 miles an hour, a top speed of 620 miles an hour, and a range of 1,860 miles. Another airliner with characteristics similar to the *TU-104A* is to be produced in two different models, one of which can carry 100 passengers, the other 78.

It also has been reported that the Soviet *Bison* jet bomber can be refueled in flight. According to *Jane's All the World's Aircraft*, the four-jet *Bison* has a range of 7,100 miles, and can attain an estimated speed of 599 miles an hour.—News item.

### *Powerful Turboprop*

The Soviet *Type K* engine, said to be the world's most powerful turboprop powerplant, is used in powering the *TU-20 Bear* long-range bomber. The *Type K* engine, which weighs 2½ tons and is almost 20 feet long, consists of a 14-stage axial compressor, an annular combustion chamber, and a five-stage turbine. It develops 12,000 horsepower.—News item.

## GREAT BRITAIN

### *Surface-to-Air Missiles*

The surface-to-air *Thunderbird* missile has been chosen by the British Army for use as an antiaircraft defense weapon, and is planned for early production. The *Thunderbird* is about 20 feet long, and utilizes a solid propellant motor. The booster of the weapon consists of four

solid propellant rockets grouped around the rear of the projectile. The booster rockets are equipped with large fins to provide stability during the early stages of launching. The *Thunderbird* is said to be comparable in operational capabilities to the later versions of the *Nike*.

The ship-to-air guided missile *Seaslug*, developed for the British Navy, is said to be able to engage enemy bombers at any height at which modern aircraft can operate. The *Seaslug* is fired from a triple-ramp launcher that is fed automatically from a magazine below decks, and uses a booster system similar to that of the *Thunderbird*. The *Seaslug* will first see active service in the armament of four guided missile destroyers now under construction.

The *Bloodhound* surface-to-air missile (MR, Jul 1957, p 70) is expected to be the mainstay of the automatic system which will progressively take over the defense of the United Kingdom from manned fighter aircraft. The *Bloodhound* is a semiautomatic homing missile that is equipped with a built-in radar that locks on the target and guides the 1,000-mile-an-hour missile on an interception course.—News item.

### Army Air Corps Organized

The light aircraft units of the British Army are to be reorganized into an Army Air Corps. This new unit will assume responsibilities for reconnaissance, artillery observation, traffic control in operations, some casualty evacuation, and transportation of critical light supplies. It also will be responsible for the maintenance and servicing of its own light aircraft and helicopters.—News item.

### Hydrofoil Boat

A recently developed hydrofoil boat is being tested to determine its practicability for naval purposes. The Canadian Navy is said to be considering it for use as a high-speed rescue craft, and as a replacement for small naval vessels. The 17½-ton aluminum alloy craft is 59 feet long, and is fitted with three hydrofoil surfaces—one on each side of the bow and a third in the stern which also serves as a rudder. The hydrofoils lift the boat hull clear of the water at 20 knots, and at top speed will give it a clearance of 42 inches.—News item.

### 'Whirlwind Mark VII'

*Whirlwind Mark VII* helicopters are being procured by the British Navy for use in antisubmarine warfare. The four-ton aircraft will carry equipment and weapons capable of locating and destroying underwater craft, and is the first helicopter built specifically for this purpose in Great Britain. Powered by a 750-horsepower *Leonides Major* engine, the *Whirlwind* cruises at 87 miles an hour, and has a range of 354 miles.—News item.

**Antisubmarine version of the *Whirlwind***

## WEST GERMANY

### *Messerschmitt Aircraft*

The Messerschmitt Aircraft Company, builder of Germany's most famous World War II fighter, is to commence production of the French Fouga *C.M. 170R Magister* jet trainers. The two-seat *Magister* is equipped with a butterfly tail and is propelled by two *Turbomeca Marbore* jet engines. It is capable of a speed of 444

The Fouga *C.M. 170R Magister*

miles an hour. The Messerschmitt Company has contracted to build 210 of the aircraft.—News item.

### *Staff School Opens*

The first class of the newly established West German Command Academy, *Fuehrungsakademie*, presently located at Bad Ems, consists of 80 officers in the rank of captain through colonel. The first course will be of six months duration, while succeeding courses are expected to last one year with classes planned to be of 100-man strength. The main intellectual influence over the students is said to be the U. S. Army Command and General Staff College at Fort Leavenworth, Kansas. Many United States training devices have been imported from Fort Leavenworth, and United States Army maps are often used in working out tactical problems on West German terrain. Several of the 16 instructors of the German Command Academy and six of the students are graduates of the USA CGSC. Nomenclature and organization taught at the academy are patterned generally on the North Atlantic Treaty Organization.—News item.

### *Armed Forces Equipment*

The West German armed forces are to be equipped with the United States *M-48A-1* medium tank. The announcement that 800 of the *M-48A-1's* would be placed on order has brought to a conclusion long-term tests the West German Government has been making of several types of armored vehicles. Sufficient tanks to arm the two West German armored divisions now in being and the tank companies of the five planned infantry divisions will be provided.

Other equipment of the growing West German forces includes 1,000 French antitank rockets recently ordered, the United States-built *Nike* antiaircraft missile, and several thousand *Hotchkiss* personnel carriers to be provided by Great Britain and France. The personnel carriers will be the basic vehicle of the West German motorized infantry divisions.

The West German Government also is examining an entire family of missiles being developed by French arms manufacturers. These include an antiaircraft rocket, an air-to-air missile, and a surface-to-air missile.

Present planning indicates that West Germany will be able to produce her own guns, tanks, naval vessels, and possibly aircraft by 1962.—News item.

# FOREIGN MILITARY DIGESTS

## Atom Bombs and Seapower

**Translated and digested by the MILITARY REVIEW from an article by Doctor Anthony E. Sokol in "Wehrkunde" (Germany) February 1957.**

THE partisans of "pushbutton" warfare are opposed to expenditure for conventional ground and naval forces, considering this a dissipation of limited financial means. To this extent they are correct—if the new weapons really can decide the next war within the course of a few hours or days, there will be little sense in retaining slowly operating armies and fleets. It would be better, such being the case, to spend all available means in the rapid and effective development of the new long-range means of destruction and, along with this, a police force for the occupation of the territory of the defeated adversary.

*In the age of interplanetary flight and 'total' nuclear war such arguments sound entirely logical and convincing. On closer examination, however, they are revealed as highly dangerous misbeliefs whose uncritical acceptance by humanity could easily become a catastrophe.*

One of the main arguments in the debate over the future form of war stems from the comparison of the factors of power—the land, naval, air, and technical and scientific combat means at the disposal of the state—purely on the basis of their power of destruction. Considering the incontestable fact that the nuclear weapons are much more effective in this respect than all prior forms, it is concluded then that they are the "ideal" weapons of the future with which no other means of war can compete and are, therefore, no longer necessary.

But there is an additional matter to be considered. Ground power, the oldest and, heretofore, generally decisive means of force of the state, reaches its strategic objective of breaking the enemy's resistance and imposing on him its own political objective in a doubly operating manner. Not only does an advancing army rob the enemy of a portion of his territory along with the sources of power resident in it, but it also wins these sources of power for itself and can use them for increasing its own power. Seapower also operates in this double manner even though to a lesser degree, for it is usually possible to obtain advantages for its own side from the sea-lanes it wrests from the control of the enemy.

### War of Destruction

This double action is not possible when war pursues a course of mere destruction. What is withdrawn from the one by actions based on mere destruction, and nothing else, does not profit the other party, but is simply lost. For this reason the strategic principle that no more energy shall be expended than is necessary for the achievement of the strategic objective, should be broadened so that no more harm shall be done the enemy than is necessary to achieve this aim.

The new feature in strategic aerial warfare is not that it uses nuclear bombs, but that it aims directly at the civilian population and no longer looks upon the combat of the enemy's armed forces as anything more than a means to the end of annihilation. By the killing of hundreds of thousands of noncombatants in a moment's time, by the devastation and crippling of the political and economic centers of the enemy state, and by inspiring general terror it aims to crush and fetter the enemy's will and ability to fight and thereby win the victory.

As was stated by the Italian general, Douhet, the battle is not waged in this case against the branches, but against the roots of the state, in order to bring down the entire tree. Nuclear weapons have the ability to bring about this condition quickly, but they represent, in themselves, no new methods of warfare. It is the so-called "strategic" air war which threatens mass murder in future warfare, and which now will render inescapable the reality of the danger to the entire population.

This extreme type of war is not suitable for the settlement of most international differences—even those of such importance that the populations are ready to run the risk of armed conflict with all its dangers and costs.

Pure war of destruction, as represented by strategic airpower with nuclear weapons, is to be reckoned with in but few cases—"total" war aiming at the complete annihilation of the enemy population. Normally, aerial war will be concerned only with carefully sought-out, militarily important targets, and will be used only as a participating portion of the general military strategy. In addition, the traditional means of the state for exerting pressure, the army and the navy, as well as political, economic, psychological, and other peaceful measures, will continue to be important and necessary. Only through the proper cooperation of all these means of pressure can the political objective, at least that of the conqueror, be attained without leading to irreparable devastation and general collapse.

### Air and Atomics

The assumption that the next war automatically will bring the employment of air and nuclear warfare is neither supported by experience or logic. Although nations which possess nuclear weapons have participated in several developments of a warlike nature since the first employment of the atom bomb, these weapons were not used simply because such employment appeared either disadvantageous or undesirable. Only in rare cases can it offer a definite advantage; in most cases it has great moral as well as material disadvantages.

As a general rule only the participant in war who knows or believes he possesses a monopoly or clear superiority in new and more dangerous combat means will make use of them. Only when he feels that his adversary cannot reply with equally effective or even more effective measures will he take the risk upon himself.

America did not make use of the atom bomb in Korea. There were no paying targets, and the Russians were in position to pay back in the same coin. Also, world opinion had rebelled against the employment of such a weapon. A similar combination of circumstances will prevail in

many instances and thus strongly limit the use of nuclear weapons except for purely tactical purposes. In this role they really represent only a new weapon rather than a revolutionary type of warfare.

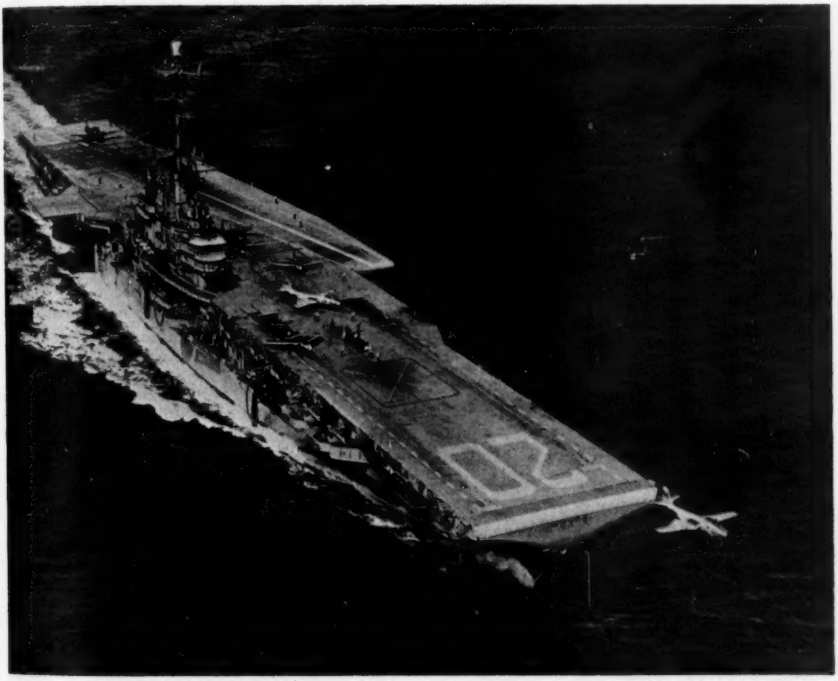
Having shown the unlikelihood of the employment of nuclear weapons as a means of the strategic air war of the future, we can turn now to the question of the continuing necessity of the traditional armed forces, particularly naval forces. There are many skeptics today who deny the navy any present or future principal role as a state means of power and element of decisive importance in war.

To test the validity of these views we must go much further than simply to compare the destructive power of the old type of naval cannon with that of nuclear weapons, or to establish the ability of a naval vessel to withstand a direct nuclear hit.

### What Is Seapower?

Seapower does not consist of naval vessels alone. It is the ability of a nation to use the sea as a communications route and to increase its own strength economically by the exchange of goods, and militarily by rapid and easy movements of forces and supplies. It is dependent on the geographic and economic circumstances of a country; it is exploited by the country's merchant vessels; and it is protected and used by the country's war fleet with its ships, airplanes, ports, and bases.

In contrast to strategic airpower, its effect is but slowly perceptible but it is, nevertheless, present both in time of peace



Aircraft carriers such as the *USS Bennington* eventually may be replaced by rocket ships

and of war. It is positive and constructive and its many great advantages have made it possible for even very small states such as Athens, Venice, or Holland to attain world power, riches, and renown.

The questions of whether seapower today still has such a favorable effect, whether its existence is still justified in the age of nuclear weapons, and whether the financial sacrifices it may call for are justified lead to a number of additional preliminary questions which must be answered.

1. Why and for whom are sea communications of importance?

2. What advantages does sea transportation offer over transportation by land and in the air?

3. What is the geopolitical situation of the two present principal groups of powers?

All industrial states are dependent on sea traffic, even though to different degrees, and are, therefore, exposed to the pressure of seapower. None of them, not even the greatest state, is able to find or produce everything in its own territory that it needs for the maintenance of its production. A great deal must be brought in from a great distance, from tropical lands, from other continents, and around and through areas of political difficulties, and a large part of these goods cross the ocean or interior seas. Among these are raw materials, oil, industrial products, and food.

The Western World consists mostly of relatively small units, highly industrialized countries, and, in many cases, partners who are separated from one another by the sea, and for this reason is dependent especially on the sea routes. In order to be able to hold its own against the Eastern bloc which is superior in point of territory and population masses, the West must make full use of the advantage offered by sea communications.

To appreciate these facts fully, we need only call to mind the two World Wars in which Germany, on the seas the weaker party, was cut off from the world's oceans, isolated, and conquered.

We should also consider the sensitiveness of the two sea states—Great Britain and France—to a threat to their interior sea connections through the Suez Canal. The atom bomb did not alter matters here in the least, either economically or militarily, for an attack on the canal with bombs would have been of no advantage to the two states that were users of the canal.

The next object of our examination is the relative advantages and disadvantages of the different methods of transportation: land, sea, or air. The factors to be considered are the element in which the movement occurs, and the vehicle which moves and carries loads.

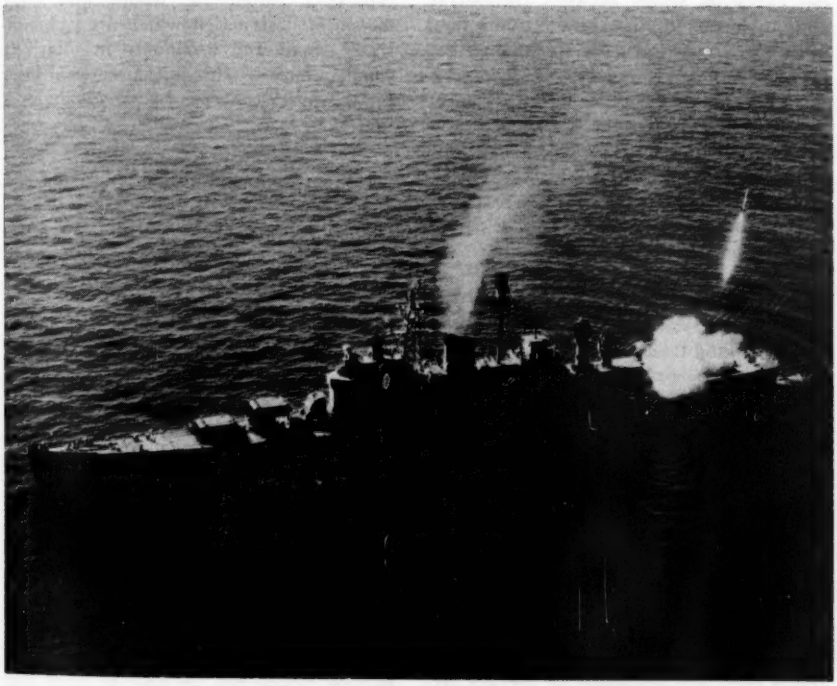
### Land Transport

Land as an element of movement has many advantages. It also has the disadvantage of not being continuous, of being broken up into continents, islands, and other regions which cannot trade with one another simply by land routes. In addition, the friction of land travel presents many obstacles, so that land transportation is smooth and rapid only where use is made of means for reducing friction artificially, such as rails and smooth highways. This is the case, however, over only a relatively small portion of the earth—in Europe, the United States, and a few other regions. Most of these developed areas are located in the immediate vicinity of the sea, while in the interior of the continent there is little traffic and movement is difficult. Generally, transportation still depends on primitive, slow, and uneconomic methods such as human porters, pack animals, carts, and sleds.

But even in land areas where traffic is more dense there are certain obstacles that oppose transportation and which are difficult to overcome, especially since land vehicles must be kept relatively small. The

worst of these obstacles is distance which, when it exceeds a certain limit, makes it necessary to carry an uneconomical amount of fuel. For this reason military expeditions over long distances have a chance for success only when the advancing army is able to maintain itself from the country it has invaded. Otherwise (after 600 to 1,200 miles at most) the offensive breaks down due to supply difficulties. The best examples are the various unsuccessful attempts to conquer Russia by land.

In addition to distance, high ranges of mountains, deserts, and large bodies of water have an unfavorable influence on land transportation. For this reason the German Army, in spite of its proved military superiority, was not able to support its distant troop units in the heart of Russia or in the North African desert, nor extend its gains to cross the few miles of the English Channel. Even the Pyrenees, together with the great distances to be covered, would have presented almost insurmountable difficulties to a land offensive against Gibraltar or North Africa. Where the necessary facilities exist, however, land transportation functions today with relative rapidity and smoothness.



**The *Terrier* rockets of the *USS Canberra* greatly add to the United States Navy's antiaircraft defense strength**

### Sea Transport

In contrast with the land the sea is a unit. Except for land formations and heavy ice, sea traffic is not limited by obstacles. Since there are no rails or roads at sea, the basic element of sea traffic is

low in cost. Communication routes at sea are easily changed and one route may be replaced easily by another. If the Suez Canal is blocked, one may always go around Africa. It takes longer and is more expensive, but it is possible; such alternatives seldom exist on land.

Without crossing the seas, the different isolated continental masses simply could not carry on traffic between themselves. Only by means of land and sea connections could the entire world be opened up. Sea transportation, moreover, is comparatively low in cost because it is carried on in relatively large and slow-moving transportation means.

According to natural laws the energy required for movement becomes less with increase in mass, but increases with the third power of the speed. For this reason only ship transportation is to be considered for moving mass goods overseas. Under certain circumstances it also can compete with land transportation, for in many cases it is less costly and easier to move goods around a country than across it. Distance does not play too great a role in sea transportation since the effect of the fuel carried on the over-all capacity is small. As an obstacle for ships, distance is one of time and expense, but it is not a serious obstacle.

### Air Transport

Air is the fastest of all transport and offers the least resistance to movement. The atmosphere is another unified element and is even less influenced by terrain difficulties than the sea. Since speed is closely associated with increasing cost, not only in terms of money but also with respect to fuel, personnel requirements, and the taxing of industrial capacities, only a small part of the world's over-all transportation requirements are handled by air.

Air transportation of freight, therefore, is only a special and auxiliary express service, and by no means an adequate substitute for land and sea transportation. In certain cases it may assume the role of the other two where the importance and particular character of the mission outweighs all matters of cost. In addition, air transport cannot replace other modes of transportation, for it, in turn, is supported and made possible by land and sea transport.

On the other hand, air transportation is especially suited for bombs and other means of destruction which are comparatively small and used only in relatively small numbers. This is the material basis for the entire concept of strategic air warfare.

### The Military Viewpoint

It has been shown that from the economic standpoint, seapower today is more important than ever. This is true from the military standpoint, although it is perhaps not quite so obvious. Aside from the fact that the economic pressure resulting from seapower may be of great military significance, its principal advantage is that it is able to extend the field of action of the ground forces, to support them, to move them rapidly, and to enable them to appear by surprise and, as a result, multiply their effectiveness. In this manner even small combat forces will be capable of exerting a large and decisive influence on events and of holding their own against powerful ground forces.

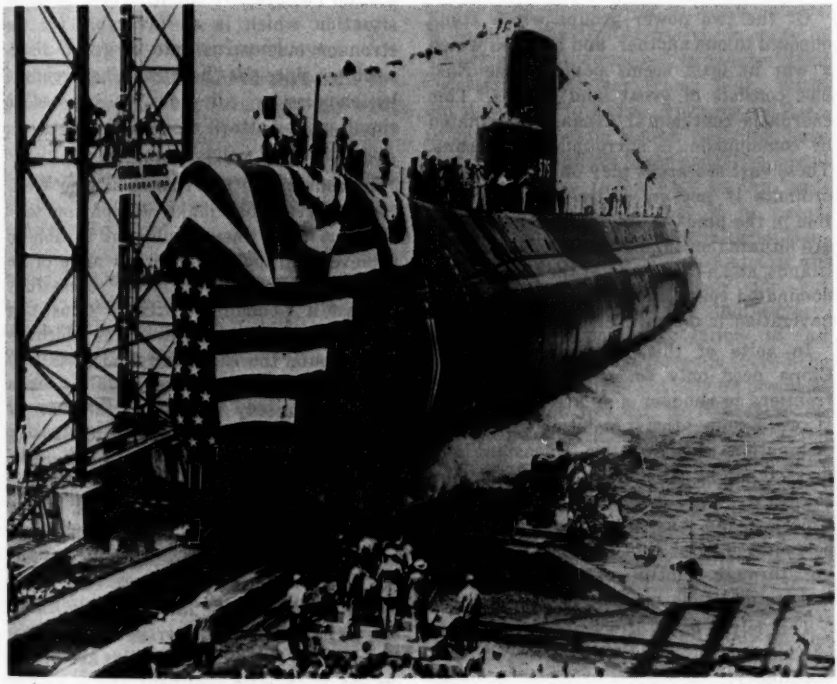
Seapower is of particular significance at this time, for without economic and military supplies from overseas, Western Europe would not be able to hold long against a Russian attack. To protect these supplies and convoy them safely to their destination is the task of the naval forces.

The navy also possesses great striking power against an adversary bordering on the sea, for their weapons are just as effective as those of the ground and air forces.

This offensive power of the navy is concentrated and typified especially in the air-

craft carrier which frequently has assumed the role of the battleship. Although it is true that like any other ship, the carrier may be sunk by projectiles, bombs, torpedoes, mines, ramming, or running aground, it presents certain advantages when compared with land airbases. Even though these airfields often are designated as unsinkable aircraft carriers, they also ing fields and turns them to his own use.

It may be that the next few years will witness a revival of the battleship type, this time armed with guided missiles and rocket cannon instead of the traditional guns. In case such ships are able to develop an offensive power equal to that of aircraft carriers, they soon will replace the carrier since they are easier to protect.



**Atomic-powered submarines augment the range and effectiveness of the undersea arm. Pictured is the *USS Sea Wolf***

must be regarded as immovable targets which are unable to dodge an attack.

Aircraft carriers can choose the direction of their attack and, therefore, appear unexpectedly, since during the course of a single night they can change their location by as much as 300 miles. They are not easily captured, and constitute a reserve when the enemy overruns land fly-

When it is inferred that modern weapons developments render ships useless for modern war, it may be answered that technical innovations provide just as many features of advantage as of danger for war vessels. Indeed, it may be said that they often are better able to protect themselves against the threats of nuclear warfare than land installations, for they con-

sist of compact, rapidly mobile units which are more easily able to escape an attack and because, at the same time, the water itself forms a protective filter. If, today, the land is able to extend its influence far out over the sea, it is equally true that ships' weapons are able to reach equally far into the land.

### Present World Situation

Of the two power groups which stand opposed to one another, and between which a war at least seems possible, the East bloc consists of great land masses. This enormous continental expanse, dominated by communism, is surrounded by oceans. These vast sea areas play only a very subordinate if not an entirely unimportant role in the plans of the East. Soviet ports are situated on inland seas or face hostile islands, and a large part of the Communist-dominated coast is surrounded by ice and navigation is difficult.

In spite of this, however, Russia or China need only to march across their frontiers to conquer new areas militarily. If we assume their ambition to be the domination of the entire Eurasian land mass, it can be satisfied by land might. For the next step—expansion over Africa, America, and Australia—seapower would be required. But this would be forthcoming through control over west Europe and its maritime means.

This is the basis of the statement made 50 years ago by the English geopolitician, Mackinder:

*He who dominates the 'heartland' (that is, Russia, as the centrally located portion of Eurasia) will, in time, dominate the 'world island' (Eurasia and Africa) and he who dominates the 'world island,' soon will have the entire earth in his power.*

Mackinder did not mean to predict the unalterable course of history, but only to emphasize the importance of geographic situation of interior lines which, for example, Germany possessed within the narrower confines of Europe and which Russia possesses with respect to the other areas of Eurasia.

But this advantageous situation can be exploited only when the state concerned is economically and militarily stronger than its neighbors and when these adjoining states do not recognize the danger in time and do not prepare for it. Then the same situation which is so favorable for the stronger side turns into a great disadvantage, since the "heartland," surrounded by enemies on all sides, is exposed to simultaneous attack on several fronts.

### The Western Powers

In contrast to the East bloc, the Western Powers must make use of the seas. Without them they would not be able to achieve their politico-military aims or, in fact, to defend themselves successfully against a Communist attack. Consisting of islands and peripheral states which extend around the European land mass, they generally are able to communicate with one another only by way of the seas. If they wish to frustrate the intentions of the East bloc to overrun all of Eurasia, they must have control of the seas.

This applies particularly to the United States, the strongest support of the Western Powers. Without being able to cross the ocean, America could not reach Russia or the Eurasiatic land complex. In order to permit easier approach and to protect herself from attacks, allies are needed on the Eurasiatic continent and especially in the peripheral regions where land and sea might are of equal importance—that is, in the island countries of Europe and Asia, in the states bordering the Atlantic Ocean, the Mediterranean, the Indian and Pacific Oceans, Iceland, England, western and southern Europe, Turkey, Iraq and Iran, Pakistan, Southeast Asia, Taiwan, and Japan.

A few links in this encircling chain, such as India and Indonesia, are lacking.

In general, however, it exists today. Its component members realize that nothing but a unified front and joint action will be able to hold in check the otherwise overly excessive might of the "heartland." These are joined and held together mainly by seapower. Without this they could not but fall victims, one after the other, to the expansive pressure of the Communist land might.

### Seapower versus Landpower

Since it must be assumed that both opposed groups are supplied adequately with airpower and nuclear weapons, it is principally the seapower of the West that can be opposed to the landpower of the Eastern bloc to prevent the latter's further expansion. To how great an extent this is the case is shown by Korea and Vietnam, where the two groups of powers finally came to a compromise in which the population of the peninsula—half island, half mainland—was simply divided.

The situation is similar in the case of Germany which is half continental, half maritime, while insular Japan has more affinity with the maritime West. Due to their accessibility from the sea, it was possible to rescue the threatened countries of Greece and Turkey from the threat of the Communist landpower, while the interior countries were hopelessly doomed to succumb to it.

While the "heartland" possesses the advantage of the greatest unity, the peripheral regions are geographically, politically, and economically divided, and must struggle constantly to attain greater unity among its members. While Russia, as the nuclear state of the East bloc, surrounds herself with a glacis composed of the satellite states immediately adjacent to her, America's security policy is based on the chain of peripheral states surrounding the "heartland," situated as far as possible from the United States. The peculiar result of this now is that America, in case of an aerial war, can launch her planes from her allied coastal countries situated close to Russia and, in consequence, is located closer to the Soviet Union than the Soviet is to her. But this is true only, of course, so long as Western seapower and the alliance system of the free world are maintained.

These examples indicate the continuing significance of seapower in world politics. Without it the United States, in spite of all her aircraft, could not have intervened successfully in either World War. Without it the war in Korea, Vietnam, or Suez, in spite of all atom bombs, could not have been fought, and all these countries would long since have fallen prey to the landpower of communism. Let it be noted, incidentally, that in all of the cases mentioned, the Western states had almost absolute air superiority on their side, but this did not guarantee them final victory. Only with proper cooperation of all branches of the armed forces is there hope of success. To depend entirely on one combat method or weapon, be it ever so effective in itself, would be unrealistic and dangerous. For this reason airpower must not be built up at the expense of the other factors of power, but like all the others must be fitted into a comprehensive strategy on the basis of its particular fields of effectiveness and superiority.

Atomic weapons will be used against population centers, if at all, only in the fortunately infrequent cases of total war when the danger of retaliation is not too great and when there are paying targets for their mass destructive effects. Humanity's aversion to them has a deterrent effect on their employment, because even world opinion is a means of pressure, and war must be given its proper place in politico-strategic calculations. If, however, their enormous destructive power is not able to decide a war immediately, it will be necessary to resort to the slow but sure combat tested arms categories of land and

seapower. These are, therefore, important and indispensable even in modern war.

That the Soviets, perhaps at the moment the most powerfully developed military power on earth, also are of this view is clearly evident from the composition of their armed forces. Because seapower appears so vital to the Western states, the Russians are attempting to counter it, especially by the development of their submarines. In a war with Russia, combat of her submarines will represent one of the principal missions of Western strategy.

To make this effective, individual submarines are not to be sought out on the high seas, pursued, and sunk, but must be stopped as they put to sea. This can be done by destruction of Russian undersea craft in their bases, or by blocking the channels they must use. In this task not only war vessels and all their weapons, but land and air might as well will play an important role; political, economic, and psychological defense measures would have to be prepared in time of peace. Nuclear weapons—for tactical or limited strategic purposes—would perhaps be employed to a limited degree.

### Germany

How may we now apply these thoughts to Germany? This is a timely question since Germany now is faced with the task of building a new armed force to meet the requirements of a future war without wasting the limited means of the state on antiquated categories of combat forces that will be ineffective under modern conditions.

First, the role of seapower cannot be equated with the much more limited role of the naval fleet. This widely prevalent and yet entirely false concept was at the root of many errors on the part of the German strategy of the last war, in which the actual effects of seapower in the political and economic domains were not recognized, and its decisive significance for Germany is still not fully understood. Yet it is easily perceived that without it Germany could count on no help from her Western allies and could neither supply her industries with the necessary raw materials nor her population with sufficient food. Because of this dependency on the sea, which is greater than ever since imports from the East are reduced, Germany for the third time is again buiding up her merchant fleet and her ports as rapidly as her financial means permit.

Matters are the same with respect to the military side of German seapower. Due to her geographic situation, Germany must have naval military forces to defend herself successfully in a war against an Eastern adversary. Naturally his advance would be in the low German plains, along the Baltic coast where the advancing forces could be supported and supplied by sea. Relying on its own strength, the German armed forces must prevent this, at least until help can arrive from the West.

Since we would be confronted with locally limited combat areas, modern vessels especially equipped and trained for coastal warfare are required, rather than battleships and aircraft carriers. They also would be highly useful for the protection of maritime traffic in the coastal zone, while for actions at greater distances Germany must rely on the fleets of the western sea states.

That the West would of necessity support Germany as quickly and as effectively as possible in her effort to halt an attack from the East, derives in part from the geographic-political situation of the country. Not only is Germany the first bulwark against the East, but she also is the gateway of the Baltic.

A sufficiently strong German war fleet in close collaboration with Danish and Norwegian forces can and must block the exit points of this interior sea in order to interfere with a Russian attack on sea

communications. By this blockade alone over half the Soviet surface vessels and submarines would be prevented from operating in the oceans. The remaining bases from which Russia is able to wage a naval war are too far away to constitute a vital threat to the West.

Naturally, not all danger from Soviet seapower which threatens the West would be eliminated. It would, however, be reduced to a minimum and localized. The effective blocking of the Kattegat and of the Kiel Canal for Russian ships is one of the most important objectives of German strategy. It can be achieved, however, only with a naval force equal to the task and in proper collaboration with the army and air force.

The same problem has another side—keeping the Baltic passage open for the ships of the West. If the war of the future were not quickly decided by nuclear weapons, an amphibious landing by Western combat forces on the Russian coast, perhaps in the rear of the Soviet Army, would be basic to the framework of the over-all Western strategy. Only by this means, and not by a land invasion, can the enormous Russian land mass be successfully combated or, still better, a Russian attack on Western Europe be prevented.

This is the way in which the West must take advantage of its maritime superiority in order to compete with the Russian superiority in men and ground forces. In view of the known and proved qualities of the Soviet forces, it is hardly to be expected that the Western combat forces would be able to slow down the Russian steamroller more than a few days with a frontal defense; neither is a modern Maginot Line a suitable means for this.

Only mobility promises definite success against such an attack—moving one's own forces rapidly, enabling them to attack unexpectedly from different directions, and forcing the "hard-to-maneuver" steamroller into difficult twists and turns. That could be carried out only with the help of a capable naval force cooperating with the Western allies. For only it renders possible the rapid and unexpected shifting of adequate combat forces, easy supply of the advancing troops, and their support by all the combat means of modern war.

The German Navy, as small and modest as it may be today, has shown in the past that it is able to fulfill these military missions as no other branch of the armed forces. Its tradition alone makes it a valuable and sought after partner of the Western World, which can confidently entrust to it the role of the sentinel and curator of the Baltic passages. Without the intervention of a capable German Navy, slowing the pace of an attack from the East, Germany and the entire Western World cannot hope for a successful defense of Europe and final victory in a war against the Soviet might.

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# The Doctrine of Proportional Force

Digested by the MILITARY REVIEW from a copyrighted article by Air Marshal Sir Robert Saundby in the "RCAF Staff College Journal" (Canada) 1956.

FOR the last 10 years the airpower and nuclear stockpile of the Western Powers have balanced and held in check the vast landpower of the Communist empires. For two reasons this balance of power is infinitely more stable than any such system that has been set up in the past. In the first place, the grouping of nations is not, as in former days, based on fear, self-interest, or temporary expediency, but on firm ideological grounds, and defections from one side to the other are unlikely. Second, even if such defections were to occur, they would not seriously tip the scale. In these days of airpower equipped with thermonuclear weapons, either side still would have more than enough military power to destroy the other.

Indeed, the balance is so stable that it has produced a military deadlock described as the nuclear stalemate. Many students of war have concluded that global war is now too violent and destructive to serve any useful purpose, and that international conflicts will be mainly carried on by nonviolent methods in the future. The new weapons will be economic and political penetration, sabotage, propaganda, and subversion. Force will be used only in circumstances in which the conflict can be localized, with little or no risk of bringing about a global outbreak.

There is a school of thought, however, which contends that the thermonuclear deterrent, with its doctrine of "massive retaliation," is altogether too crude an instrument and very far from satisfactory as a long-term policy for defense. Adlai Stevenson, in March 1954, complained that reliance on massive retaliation was unsound, since it could never be used except at the risk—almost the certainty—of starting a global war, and was, therefore, a form of bluff. "Are we leaving ourselves," he asked, "the grim choice of inaction or a thermonuclear holocaust?"

## All or Nothing

Lester Pearson has devoted considerable space to this problem in his thoughtful book, *Democracy in World Politics*. He finds something very frightening about playing "all or nothing" with any kind of weapon and suggests that the principles of natural law justify the doctrine of a "limited use of force, proportionate to the circumstances and strictly necessary to accomplish specific objectives."

He points out that civil law, at any rate in the English-speaking world, recognizes this doctrine. In Canadian law it has been laid down that in resisting an attack the force employed must not be out of proportion to the apparent urgency of the occasion. In United States law the doctrine is carried further, for it has been decided that in repelling or resisting an assault, no more force may be used than is necessary for the purpose, and if the person assaulted uses in his defense greater force than is necessary for the purpose, he becomes the aggressor.

Mr. Pearson suggests that this legal doctrine should be applied to the conduct of international conflicts, and that if force is used against us we should take care never to use more force in our defense than is judged to be strictly necessary. He believes that the future of civilization, and perhaps of the human race, may well depend on our ability to develop "a doctrine of proportion, and do our best to impose it on the other side by the cold logic of fact." He suggests that this might be called the "doctrine of reasonable or measured retaliation."

The doctrine of the use of minimum force in self-defense, although well-established in civil law, has never proved easy to apply in practice. The difficulty, of course, is that the person attacked cannot wait to see how serious the aggression is likely to be. If he should attempt to do so, he may well lose the chance of putting up any effective defense, nor can he be expected to be in a state of mind in which a cool and impartial appreciation of the situation can be rapidly and accurately made. In addition, if the assailant knows or suspects that his victim is attempting to abide by the doctrine of minimum force, he could maneuver himself into a favorable tactical position from which the final assault could be accomplished with small risk of failure.

Of course, it is never legitimate to shoot a man who is using threatening language or even shaking his fists, but if actual violence is offered it is most difficult, even in the calm and leisured atmosphere of a court of law, to assess the degree of force deemed to be reasonable for the purpose of repelling an attack. In practice, however, the sympathies of the court and jury usually are with the victim rather than with the assailant, and instances are rare in which the degree of force used in resisting violence has been condemned.

When an attempt is made to apply the doctrine of minimum force to the conduct of military operations, serious opposition usually is encountered. For a long time this doctrine, at least in the British Commonwealth and Empire, has governed one aspect of the use of military force—its employment in aid of the civil power. The results have been so unsatisfactory that the doctrine has come to be regarded in military circles with profound distrust.

### Civil Disorders

When civil disorders occur, the authorities—deeply imbued with the doctrine of minimum force—usually underestimate the seriousness of the situation, and delay calling upon the military power until affairs have become desperate. The unfortunate military commander, when he arrives at the scene of the disorders, is in a position of great delicacy and difficulty. He knows that if he takes action which results in a number of civilian casualties, he is liable to be bitterly criticized and probably will be brought to trial. His actions will be judged by unsympathetic civilians—with plenty of time and all the facts at their disposal—in very different circumstances from those prevailing at the time of the incident, when time pressed and lack of accurate information made it difficult to judge the precise degree of force needed to restore the situation.

The commander is, therefore, tempted to err on the side of caution, and may find that his troops are incurring casualties, or are even in danger of being cut off or overwhelmed, and he is eventually compelled to use far more force than would have been necessary had it been applied promptly and firmly.

Our history is full of these deplorable episodes, and it has long been realized in the service that the use of military power in accordance with the doctrine of minimum or reasonable force creates especial difficulties. The almost impossible position of the military commander has been recognized in Lord Mansfield's famous judgment, which laid down that the business of the court was not to determine whether or not, in the light of all the information available, the commander had, in fact, used no more than the minimum necessary degree of force, but to assess "how his heart stood."

If he had honestly tried to restore order by using what, in his judgment at the time, appeared to him to be the requisite degree of force, then—even if it now appeared that that degree of force was excessive—he was to be acquitted. He could be found guilty only if he were proved to

be actuated by malice or cruelty, or by a desire to punish the malefactors—which is not the province of the military power—and had used force to those ends. In spite of this wise and humane ruling serious injustices have been done and, indeed, there is nothing that officers dread so much as being called upon to act in aid of the civil power.

This may explain the dislike of this doctrine in the services. The fact that it has proved unsatisfactory and difficult to apply should not deter us from adopting it for use in international conflicts, if by doing so we can gain our objectives and avoid thermonuclear holocaust. In practice, how would the doctrine of reasonable or measured retaliation be applied on the outbreak of a war?

### Retaliation

I think that the first thing to note is that "retaliation" is mainly a political concept which has little to do with military strategy or the actual conduct of war-like operations. It is a device which can have a useful, and sometimes even a decisive, deterrent effect.

Mr. John Foster Dulles is perfectly correct when he insists that Western air-power, able and instantly ready to carry out "massive retaliation" with thermonuclear weapons, is the strongest possible deterrent to the outbreak of global war. The threat of retaliation can be used effectively only to prevent an enemy from resorting to war, or, once war has broken out, to deter him from adopting certain courses of action, such as the slaughter or ill-treatment of prisoners of war, the use of chemical weapons, or the thermonuclear bombing of cities. *But wars are not won by retaliation; they are won by the correct deployment and use of military power.*

Wars can be divided into two main classes: those which are, from the outset, unlimited in scope and aim; and those fought for a limited object, in which the military force committed to the war is directed solely toward the attainment of that object.

With regard to unlimited war, there is a widespread belief that since the days of Clausewitz military leaders have usually, if not always, been in favor of total war, aiming at the use of the utmost violence leading to the complete overthrow of the enemy. Lester Pearson compares the sound instincts of civil governments with a "military strategy based on total destruction and unconditional surrender." He goes on to say that he doubts "whether, above the tactical and logistic level, there has ever been sound advice or wise decisions which have been exclusively military."

Yet it was the Kaiser and the German Chancellor who overruled their more cautious military advisors in 1914, and decided to fight an all-out war on two fronts against France, Great Britain, and Russia. It was Hitler who overruled his service chiefs in 1939-41, and insisted on courses of action which were bound to end in global war. And it was the Allied statesmen, and not the military leaders, who devised and adopted the policy of "unconditional surrender," which undoubtedly prolonged the last war and increased the destruction and loss of life. They felt compelled to do so because of their fears that Stalin might otherwise negotiate a separate peace with Hitler. This would enable the Germans to transfer large forces to the west, making their projected invasion of Europe impracticable. However, this does not alter the fact that the decision was political and not in any way military.

It is a mistake to suppose that military strategy, even in its purest form, must of necessity widen the scope of a war and lead to greater destruction in the long run. The reverse is more commonly true, and political decisions and restrictions, however right and necessary they may

be in the wider context of international affairs, often may prevent the adoption of a correct strategy and thus prolong the struggle and cause increased casualties and destruction.

If war should break out, it is clearly a matter of the first importance to determine at the earliest possible moment to which category it belongs. This is not likely to be very difficult, since no aggressor would initiate a minor war in such a way that it could be mistaken for full-scale unlimited war, and bring down upon his head the dreaded thermonuclear holocaust.

If it is a full-scale war, it is essential that the heaviest possible counterattack—not retaliation—be launched without delay. Even to allow the slightest doubt to develop as to our ability and determination to do so would be to bring the danger of global war appreciably nearer. Lester Pearson recognizes this when he says that full-scale "retaliation," including the dropping of hydrogen bombs on crowded cities, would be justified in "circumstances which clearly imply the launching of a general war of aggression."

### Limited War

There is really no room for any other view, and the doctrine of reasonable or measured retaliation can, therefore, apply only to the second category—that of wars fought for a limited object. Here the problem is to gain the object by methods which will not lead to the extension of the conflict to a point at which it becomes unlimited and global.

Mr. Pearson and other writers, notably Rear Admiral Sir Anthony Buzzard in England, seem to fear that this is likely to occur by accident or misunderstanding, or by a gradual loss of control over the situation by one side or the other until all restrictions and limitations have been cast aside. While no one can deny that this is possible, recent examples of limited wars —in Korea, Indochina, and the war between the Arab League and Israel—suggest that it is highly improbable.

In all three cases the conflict was restricted to the area in dispute, as it was not in the interests of any of the belligerents—or their backers—to enlarge its scope. Even before the invention of nuclear weapons a similar restraint occurred during the war in Spain in 1937-38, in which Russia, Germany, and France were deeply interested, and in which the art of "nonintervention" was practiced with great skill and judgment.

It is obvious that the determination to prevent the development of a global war was paramount in the minds of the belligerents in these limited wars, and that it took precedence even over the desire to gain the objects for which they were fighting. I suggest that in this era of thermonuclear weapons this will always be so, and it is the fear of "massive retaliation" with weapons of mass destruction that will maintain this determination.

It is idle, however, to pretend that political restrictions designed to limit the scope of a war do not greatly impede the effective use of military force, as they often cut right across the requirements of sound military strategy. This particularly hampers the side which has been attacked and which has, thereby, probably been surprised and placed at a disadvantage. The aggressor, on the other hand, has the initiative and can plan his attack in accordance with the limitations he intends to observe.

This was very apparent in the war in Korea. The United Nations—after a hard and costly struggle into which a tremendous effort was put—had to be content with a most unsatisfactory compromise. This was mainly because the United Nations statesmen, following the higher aim of preventing the war from spreading, would not allow General Douglas MacArthur to employ the correct military

strategy which would have enabled him to gain a decisive military victory. As everybody knows, MacArthur was unwilling to see his forces restricted in this way, which was not only discouraging to their morale, but led to meager results and disproportionately high casualties. This divergence of views eventually led to MacArthur's recall.

It is the duty of the military commander to advise his political chiefs as to the correct strategy to adopt in any given circumstances. It is also his duty to protest against restrictions which jeopardize the attainment of the objective and lead to unnecessary casualties. But having ensured that the politicians understand the price that will have to be paid if they decide, for reasons of their own, to adopt restrictions and limitations, it is equally the duty of the military commander to accept the position and do his best. He is justified in refusing to do so, or in resigning, only if he is convinced that the task he has been set is practically impossible, or will compel his force to accept a wholly unreasonable rate of loss.

It is certain that the use of airpower in Korea, in accordance with correct strategic principles, would have enabled the United Nations not only to defeat the aggressors—which they failed to do—but also to save many lives. A study of limited wars during the last few years shows that the West has leaned over backward to avoid anything that might enlarge the conflict, and paid a heavy price for so doing.

We were so anxious to avoid the risk of global war that we imposed upon ourselves restrictions which were much less than fair to our own fighting men, and which were, in all probability, unnecessary. Although no one can now prove it one way or the other, I believe that if we had, for example, used our airpower to prevent supplies from reaching the North Korean and Chinese armies, and destroyed the Communist airfields north of the Yalu River, the conflict would still have remained localized. Indeed, I would go further and say that I believe that even if we had used tactical atomic weapons, it would not have led to global war.

The lesson of these limited wars is surely that we cannot afford to go on being so eminently cautious and reasonable, and restrict the operations of our own forces to the point at which we incur unnecessary casualties and fail to achieve our objective. What appears to be needed is not a further emphasis on a doctrine of reasonable or measured retaliation, but a clearer appreciation of how far we can and ought to go without incurring any serious risk of starting a global war. The key factor is not the type of weapon used, but the fact that our objective is clearly seen and known to be a limited one.

If we announce quite plainly what our objective is, and if all our military operations are centered strategically on that limited goal, there is little risk of a misunderstanding leading to global war; nor would the publication of our objective, and even the announcement of the methods we intend to use, be as severe a handicap as some of the restrictions adopted in Korea and elsewhere.

## Conclusion

We are rapidly approaching the stage at which conventional forces will be equipped with tactical atomic weapons. President Eisenhower said on 16 March 1955 that in any conflict where tactical atomic weapons could be used against strictly military targets he could "see no reason why they should not be used exactly as you would use a bullet or anything else."

If we shrink from using them because we fear that the use of anything that can be labeled "nuclear" will bring about retaliation in the form of an attack on our cities with hydrogen bombs, then we are inviting the Communists to resort to force

in the form of limited wars, in which we shall probably fail to defend our position and punish the aggressors.

While no one would suggest that any aggression in any circumstances should be met by "massive retaliation" involving the unrestricted use of H-bombs, we must take care that we do not, by overcautious restrictions due to fear of global war, give the green light to aggressors everywhere to embark on limited wars.

Our higher objective is to abolish war. I believe that the thermonuclear stalemate has already, in effect, abolished global war, and the next step is to make things so hot for the aggressors that it will become clear that minor or limited wars do not pay either. That is the real problem before us, and it is not too much to say that the future of western democratic civilization depends on our finding the answer to it.

I suggest that we shall not do so by adopting a doctrine of the use of minimum force, or of reasonable or measured retaliation.

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# Possible Aspects of World War III

**Translated and digested by the MILITARY REVIEW from an article by General J. Revol in "Revue Militaire Suisse" (Switzerland) December 1956.**

THE strategic character of each war is indicated, it seems, by the instruments used by the generals in their work. There exists in the historical archives of the French Ministry of War a 1:1,000,000 map of Europe soiled with candle marks, with a pair of compasses lying on it. Napoleon used it to measure the daily marches of his men.

The soldiers of World War I made use of 1:200,000 wall maps on which they indicated the oscillations of the front. The controlling headquarters of World War II were able to satisfy their needs with a series of maps of the different operational sectors: the West, Eastern Europe, the Mediterranean, and the Pacific.

The meditations of the two opposing commands of world war III probably will take place not before a map or even a portfolio of maps, but before a terrestrial globe. This will enable them to evaluate the time required for the movement of their operational means, to coordinate maneuvers of intercontinental amplitude joined together in strict strategic interdependence. From now on, it may be said, there no longer will be more than a single theater of operations. The next war will really merit being called a world war.

To be sure, we already have seen wars carried to the extremities of the planet and not only the two preceding wars of the 20th century. There were earlier wars which contended for the most recently discovered territories. The Mongolian invasions of Genghis Khan and of Tamerlane may be placed in this category. The wars of ancient Rome are to be classified here, since they extended to the limits of the then-known world. There can be little doubt that the migrations of the populations in prehistoric times likewise belong in this classification. But none of the past conflicts will have borne the completely unified character that will be conferred on the next one by its eventual belligerents and the weapons or matériel it will employ.

### Two Colossi

The entire world tends to divide itself between two colossi, two superpowers, and few are the other powers capable of resisting the multiple pressures to which the necessities of the time of war would sub-

ject them. There results from this, at the present time, the formation of two vast coalitions whose participants although retaining, theoretically, their established share of national sovereignty, are nonetheless dependent on the will of each superpower in the matter of foreign policy and preparation for war. Thus world war III may start either—as did the two preceding ones—from a local conflict between two nations belonging to the same Allied group or even opposite groups, or by direct engagement between the two superpowers.

In the first case the war would spread by degrees. Without doubt it would become general much more rapidly than did World War I in 1917 and World War II in 1941. It is even probable that its expansion would be practically instantaneous if we are to judge from the declaration made on 13 November 1956 by General Alfred M. Gruenther:

*If the USSR put into execution its threat to launch rockets against certain countries of NATO, we should immediately resort to reprisals and the Soviet Union would be destroyed.*

Separated by oceans, two continents will open hostilities on the ground, on the seas, and in the air at the same time. Operational lines and transport or supply movements will follow the great circle arcs as closely as possible. Europe, Africa, and that portion of Asia that has escaped the grip of communism will be the stakes of the struggle. Even the Arctic areas, where the airline routes are now dotted with extensive ground installations, airfields, stores of matériel, and radar networks, will be a battle area.

But what will make the earth a single theater of operations, thus imparting to future war its first characteristics of originality, will be the weapons and the means of action that will be employed in it. All these seem to concur, and in progressive intensity, to the development of power and speed.

It is estimated that in a few years from now the belligerents will possess missiles capable of crossing the oceans. The USSR already possesses a supersonic missile capable of striking targets 1,500 miles from the launching site. Practically all NATO countries and all United States airbases in other countries are exposed to this missile. It marks an important stage in the intercontinental missiles race which should, according to the studies being conducted, cover a distance of 5,000 miles in around a half hour. We are already a long way from the *V-1's* and *V-2's* showered on England by Hitler during the second half of World War II.

Thanks to the radio, the transmission of orders or information is instantaneous. This renders the exercise of command possible to any point on the globe. The carrying capacity, speed, and radius of action of aviation have been increased a hundredfold by the employment of jet propulsion. The employment of atomic energy in the propulsion of ships, submarines, and aircraft carriers will widen their range of action by rendering it unnecessary to reestablish contact with bases for refueling.

This picture of the near future assumes, of course, that world war III will not break out until all the improvements indicated above have been effected. If it breaks out before that time, we may be sure that it would give a vigorous impulse to research institutions, thus hastening the perfection of these weapons.

### Total War

Ludendorff predicted total war at the end of World War I. It seems that the third one will make a reality of his prediction.

Total war raged on the ancient world. Battles which were very murderous for the vanquished, the *coup de grâce* for the wounded, massacre of prisoners, cities

burned, crops destroyed, mass deportation of populations reduced to slavery to the profit of the conqueror—such is the picture left by the historians of antiquity of the wars of their day.

Christianity attempted to introduce some humanity in war. The gradual increase of national monarchies contributed to this by the prohibition of private wars and the enforcement of the laws of war based on a more or less wavering respect for moral law. Joseph de Maistre said:

*The divine spirit tempered even the scales of eternal justice, and the European War will always stand out in the annals of the universe. Men killed one another, that is true. They burned, ravaged, even committed, if you please, thousands of useless crimes, but, nevertheless, everything that was weak was held as sacred amidst the lugubrious scenes of this devastating scourge.*

Today, with religious spirit at a markedly low ebb, moral law is disappearing in the face of the law of the jungle: a return to the use of force hypocritically hidden under assurances of pacific intentions and international solidarity.

Other considerations deriving from military technique explain and, in a way, justify this return to the barbaric practices of the past. The aim pursued by war —destruction of the living forces of the enemy—obtained up to the end of the 18th century because it was impossible to wage an immediate battle of annihilation. The organic composition of armies and the rudimentary state of development of armament did not permit it.

The Napoleonic concept, accepted and applied since that time, was permeated by the idea of offensive action and speed. Codified by Clausewitz, it consists of destroying the hostile army in an initial clash, then in marching on the capital to disorganize the government, to prevent it from constituting new forces—in short, in occupying the enemy's territory and exploiting his country.

Technical advances in aviation, rockets, guided missiles, and parachute units give to the armed forces of today the ability to reach the interior of enemy territory immediately, and to spread terror and destruction there. The supply depots of the Napoleonic armies have been replaced by the entire country with its factories, cities, fields, highways, and rail or waterways.

There still is more to add its cost to the effort of national mobilization in the different domains—military, industrial, economic, social, and scientific. Formerly, armies retained the same armament during the entire duration of the war: "Armament," it was said, "like organization and the training of troops, is a work of time of peace."

But armament, of necessity very diversified in order to lend itself to the various forms which operations assume, is evolving rapidly. Continuous manufacturing activity adds to the enormously augmented replacement tonnages. This causes demolitions carried out in enemy territory to take an almost preponderant place. They will be accompanied by high losses of noncombatants.

The action of parachuted or airborne forces will be added to the annihilation by aviation and rockets thus creating an increasing number of battlefields in the interior of the country.

Finally, there are attacks which disturb the social peace of a country by stirring up strikes in factories or uprisings of populations. Thus all the known forms of war—foreign, civil, bacteriological, economic, ideological, and guerrilla war between partisans and ground defense commandos—could easily, in the case of certain nations, explode simultaneously when world war III began.

The reciprocal actions of devastation in the interior of the belligerent countries do

not free them from the necessity of warding off the attack by ground armies, which alone are capable of proceeding to uninterrupted and lasting occupation. These ground armies are made up of two distinct types of forces: a combat force, a shock force par excellence for the invasion; and an occupation force.

### Security Measures

Separated by oceans, it is through their allies that the two superpowers make contact. In this war of coalitions, the allies of the United States are on the border of the Eurasiatic continent which the USSR and her allies occupy to its greater extent. The Soviet coalition thus forms a territorial bloc in a single piece. Its vast proportions forbid taking very seriously its protests against any type of encirclement. On the other hand, they do permit fruitful maneuvers on interior lines.

For its part, the American coalition finds itself handicapped because of the immense maritime moat—the Pacific and Atlantic Oceans—which cuts it in two strategically. It is obliged to make a great naval effort (transport vessels, aircraft carriers, offensive squadrons, and necessary control of the seas), while the USSR, so long as she does not have the ambition to go to Washington to dictate her terms, simply can confine herself to using her fleet of submarines and air-naval forces for harassing the American traffic across the oceans.

The traditional rivalry in the European framework between Russia and England, that between the bear and the whale, sees itself thus transposed under similar conditions to the level of world rivalry between two continents.

It is reasonable to assume that the hostilities, wherever they begin, will have their maximum intensity in Europe where the USSR has the center of gravity of her political, military, and economic potential; where her hold seems strongest on her satellites; where the United States has her most powerful allies which are also the most exposed to the attacks of the adversary.

### Cold War

The establishment of a balance of power between the two camps by the creation of NATO in 1949 and the discussion and speculation which followed served only to intensify the cold war which is actually nothing else than an extension of the political tensions of the past.

This cold war is accompanied by local incidents, skillfully calculated by their inventors to cause the almost permanent threat of a general conflict to hang over the world. Thus one is justified in advancing the thought that world war III already is virtually engaged.

The initiative belongs to the Communist world, while the Western democracies give preference to security precautions without, however, excluding prudent ripostes. In the Korean war the West dissimulated intervention under the pretext of acting for the United Nations; the affair quieted down with the provisory solution of a division of the territories involved. The war in Indochina which France believed for a long time she could support alone in spite of the distances involved also came to an end with a temporary solution. The Americans are supporting, alone, a Nationalist China which has sought refuge in Taiwan. The nations in this sector of the Far East seem to have agreed with common accord not to make any risky moves, and the Southeast Asiatic Pact does not bear the character of urgency and intensity of its homologue, the Atlantic Pact.

In the European sector the immediately available armed forces are the closest to entering into action. Each seeks to undermine the other party to his own advantages. The difficulties which France has encountered in North Africa have necessitated a recall of the divisions assigned to NATO and their readaptation to the type

of war that must be conducted against the insurgents. Likewise, it is very probable that the uprisings in East Berlin, in Poznan, and Hungary are not considered by Supreme Headquarters Allied Powers Europe as capable of impairing the efficacy of the Warsaw Pact. One senses the reciprocal hesitations to unleash an open conflict in central Europe where the old Czarist Russia risked herself three times.

On the contrary, the Near and Middle East sector offers Moscow all the temptations inspired by political instability, violent nationalism, social misery, and the wealth of rich oil deposits; and here the unity of the Western Nations is the least stable. The masters of the Kremlin have been traditionally interested in this area. After Peter the Great had opened to Russia a "window on Europe," the search for the open sea was oriented by way of the Black and Caspian Seas, and toward the eastern Mediterranean and the Persian Gulf, an expansion that in some ways was natural. The obstacles set up by Turkey and England made these two powers the constant adversaries of Russia. For centuries the question of the Orient has kept the chancelleries on edge; diplomats and strategists alternate in seeking to push their way into the spotlight there.

Today, the USSR groups in a single policy her habitual objective of access to the open sea, the idea of a vast outflanking movement of the European front by way of the Arab countries of the Near East and Egypt, and, with more distant vision, the dissemination of the Communist ideology over Africa. This latter would make of the Dark Continent one of the objects of attack and defense in the third world war.

### Strained Alliances

These local incidents not only disturb the adverse setup but also produce strains in alliances. One of the most recent cases is the military occupation of the Suez Canal attempted by the Franco-British forces which brought out clearly the underground actions of the USSR among the Arab States. At the same time, it strained the solidarity of NATO dangerously. Thus we see manifested the frailty of the military systems now facing one another.

Coalitions often have been experienced at the end of a war during which danger and common interest have shown the imperious need of remaining united, of enduring the trials and fatigue of the war, and remaining silent with regard to one's particular claims. Agreements of alliance always take the precaution of stipulating a pledge by each participant not to conclude a separate peace.

The proof of the instability of coalitions becomes apparent even before they really become operative. The reason for this is in the maintenance of the sovereignty of the various signatory states. Nothing, unless it is force—and even this is effective only for a time—obliges an independent people to do what they do not wish to—its army is designed, above all, for precise national ends. But the consolidating cement of sacrifices for the security for all is lacking in a coalition army. That is why it can be predicted that, in the final analysis, the third world conflict will reduce down to a settling of accounts between two armies, those of the USSR and of the United States, the major atomic powers.

### Development of Operations

World War I began with the machine-gun and heavy field artillery and ended with the advent of the tank. World War II began with the massed employment of the tank in combination with the airplane, came to its end with the *V-1* and *V-2* rockets, on one hand, and the Hiroshima atom bomb on the other. In all logic it would be prudent to expect a deluge of nuclear missiles at the beginning of world war III.

Thus a major problem, urgently in need of solution, is that of the protection of the large cities, the major industrial areas, and the whole of the ensemble of the material life of a country. Confronted by surprise beginning with no heralds announcing it and no official declarations of war, there will be no time in which to mobilize manpower and constitute fighting units.

The latter will enter immediately into battle in the condition they find themselves on D-day. To wait until the initial atomic phase has produced its effects before setting them in motion would be to violate the immutable principle of cooperation between arms. This cooperation is realized, today, in an intimate manner between the tactical arms of former times. The infantry possesses its own arsenal of artillery. Faithful to the memory of the armor-clad cavaliers, the cavalry surrounds itself with the steel walls of its tanks. The artillery and the engineers are integrated closely with the other combatants.

In the strategic domain close collaboration in both time and space must be established between the ground, air, and naval forces.

Perhaps the first victory will lead to the end of the war. This is what Hitler hoped for after having conquered Poland. But it is possible, also, that the hostilities which have slowed down in some sectors will be intensified in others, requiring a considerable effort on the part of a naval, air, and ground logistical system adapted to the global dimensions of the conflict.

If the Russians have pushed clear to the Atlantic, it will be necessary for the Americans to carry out again the maneuver executed against Hitler, but under conditions infinitely less favorable. If, on the contrary, the Russians have had to abandon their occupation of the satellite countries, the strategic problem that would have to be solved by the high command of the Western Powers would involve the reduction of the mass of Communist populations of European Russia, Siberia, and China. This long task would have to be performed progressively by the simultaneous employment of forcible military means and of psychological propaganda.

In a talk which he gave on the subject, "The Panorama of Warfare in a Nuclear Age," Field Marshal Montgomery—and there can be no doubt that he is an expert in this matter—assigned three phases to this war: the first a phase of destruction lasting around 50 days; the second of exploitation which he estimates at two years; and the third, a "very long" phase of reconstruction. This means, in short, that this future war will have interminable consequences, which is still an optimistic thought—humanity would escape pure and simple annihilation.

### The Mediterranean

The orientation of international policy brings out the strategic importance of the Mediterranean sector, that sector which Churchill designated as the soft underbelly of Europe. Everything works together to make this a choice zone for the USSR. As General Spears wrote in 1953, "When the USSR extends its claws toward the Middle East it will find there a favorable terrain, be it only due to the hatred of these regions for the West." One can imagine that the Red High Command, maintaining an attitude of elastic defense in central Europe—which would not exclude attacks on the air and naval bases of the Western Powers—would orient its offensive effort toward the Mediterranean sector. The allies are in a state of least resistance there.

With weaker and more dispersed bases and with naval squadrons charged with complex missions, they have at their disposal for ground operations in this area only Greek and Turkish Armies whose collaboration in a common task perhaps would be a little difficult to ensure. However abundant the matériel may be which

they have received from America, would they offer prolonged resistance to Russian troops, joining with a very supercombat potential a spirit of conquest spurring them on toward traditionally national objectives? The Bulgarian Army, for example, would lend itself eagerly to a maneuver that would hold out promises of the acquisition of Salonika in default of ancient Byzantium.

With the Straits open to the Russian Black Sea Fleet, there would be a massive invasion of the Mediterranean by the Red submarines and, in consequence, considerable harassment, if not interruption, of the sea communications of the Western Powers.

On the Asiatic land front, where oil constitutes the immediate economic objective, the USSR would encounter only a sprinkling of Arab forces if she escaped contact with the Turkish Army by way of the Caspian, of the Caucasus, and the territories of Iran, Iraq, and Syria. She then would reach Mosul and Baghdad by an operational line much shorter (it is 600 miles airline distance from Baku to Baghdad) than the Western Powers would have at their disposal for bringing up their forces (a maritime route all the way to the Persian Gulf). If the Mediterranean were blocked to the Western Powers, the most effective parry they could offer would be to establish a block on the Suez Canal, in cooperation with the army of Israel, in order to halt the invader.

The outcome of the battle for the Suez would block or open the route to the African Continent for the Russians. And in case this latter hypothesis were realized, we should see how much of what is today called anticolonialism, the precursor of communism, will have aided the advance of its armies. With its customary brutality and diabolical skill, Moscow would set out on the conquest of North Africa, the "Arab state" so frequently referred to in the Arab milieux.

It goes without saying that the operations on the southern border of the Mediterranean would be accompanied by analogous maneuvers on the northern shores. One would see there Italians, Albanians, and Yugoslavians contend for the domination of the Adriatic and of Venetia. With a like complex of hostilities developing at the same time on the two faces of the Alps, what would become of Swiss neutrality?

### Conclusions

World war III differs from those which preceded it by the extreme vastness of its material actions of destruction and the extensiveness of the losses of human life it will bring about. It will no longer be only armies meeting in a prodigious, annihilating clash. The adversaries will attack that which has given humanity its joy of living, that is, its sense of moral progress from a primitive state of barbarity to which, it seems, it may be returned. How would it be capable of bearing such suffering except by exalting its spirit of sacrifice, its willingness to endure suffering, its consciousness of its duty to serve? Patriotism is imposed on us more than ever.

The coalition war assumes a political unity that is still unrealized. In the century of nuclear energy and jet propulsion, the interdependence of nations would require a transformation in the relationships between states, a progressive attenuation of the dogma of national sovereignty, a rapprochement of opposed ideologies, and more reciprocal understanding between races and groupments. This realization of a supranational unity would give an alliance the necessary cohesion. This alone would make it possible to meet successfully the vicissitudes which will not fail to present themselves in the course of events.

# Tactical Aviation

**Translated and digested by the MILITARY REVIEW from an article by Camille Rougeron in "Wehrkunde" (Germany) December 1956.**

THE most convinced defenders of the supposed immutability of military principles have been conceding for some time that tactics change about every 10 years. What we may call the "tempo of history," has, if anything, still further accelerated this change. Even tactical aviation, whether it supports the combat forces directly or indirectly by attacks on approaching reinforcements and supplies, cannot escape this universal rule. Its strong and its weak points, therefore, must be subjected to continuing scrutiny, since tactical aviation superiority constitutes one of the necessary conditions for the success of ground operations.

## The Second World War

There are few military procedures whose value was so clearly proved by the Second World War as the cooperation necessary between armored divisions and ground support air wings. It brought the German Army unbroken success for more than two years. But even to the present day the comprehensive and dominant role played by aviation has not been realized fully.

It has been understood that the *Stukas* which accompanied the armored divisions prepared the way for them by destroying whatever ground positions opposed the advance of the tanks. But less weight has been attached to the eventual role which the ground support aircraft, protected by fighting, would have played in the face of the only possible counteraction, a counterattack in the air. This is easily explained. The Franco-British Air Forces were in no way prepared for tactical engagement. In contrast, the Soviet Air Force was prepared exclusively for engagements in cooperation with ground forces, and during the first months of the campaign it was able to oppose the German combat air forces only with inferior matériel and untrained operating personnel.

The *Stukas* did protect the armored divisions from enemy tanks. Their bombs would have halted any counterattack the enemy might have staged. But the *Me-109's* were ready, in addition, to shield these same armored divisions against a simultaneous counterattack from the air, which is the most effective countermeasure as later events proved at Kasserine and Normandy.

In the war of movement from late 1939 to 1941, the superiority which the air force of the German Army ensured was overwhelming. For the past 15 years the allied commands have been blamed for the mistakes they made, for the "opportunities they let slip," of trapping the German High Command in its daring operations. On the contrary, the power of the tool which the Germans had at their disposal in their air force would have permitted their high command still bolder undertakings. On the Western Front, as in Norway and the Balkans, the idea prevailed in 1940 that: "We were beaten by the advance guard of the German Army."

Why did this situation change and how did tactical aviation, especially on the Mediterranean and Western Fronts, become the most important combat instrument of the *Allied* armies? Without failing to take account of Germany's extraordinary difficulties in the field of industrial production in comparison with the enormous output of the American aviation industry, we must assign the blame to the mistake of the German Air Force in its choice of tactical aviation matériel.

### The Multipurpose Plane

The British and the American Air Forces were a long time recognizing the importance of this point, but when they did they correctly chose the type of airplane best suited for the execution of these missions—the fighter bomber. However, this does not mean that Great Britain, with the transformation of her *Hurricane* fighter into the *Hurribomber*, and the United States, with the construction of such effective fighter planes as the *Thunderbolt*, had carefully compared the advantages and disadvantages of a special plane of the *Stuka* type with the double mission fighter bomber. It is more probable that the choice was based on the fact that the British and American Air Forces were compelled by a lack of time to use their fighter aircraft against ground targets, and for this purpose equipped them with cannon and rockets. There was simply no time available for the manufacture of new types.

In any case, experience finally led to the abandonment of the special plane in favor of a multipurpose plane which, after its attack on ground targets, could resume its activity as a fighter. It is well known what remarkable results especially capable German pilots were able to get out of their *Ju 87's*. They were able to knock out dozens of enemy fighters and, at the same time, an equally large number of tanks and guns which were their real targets, and they came through it alive. However, one must consider an average, hastily trained pilot who is thrown into battle with a plane of less capabilities. Although official information as to the activities of the *Stormoviks* is not available, and no verification is to be had of the very high losses the German Air Force inflicted on them, there is little doubt that they were large. The Soviet pilots had to pay dearly for the lesser capabilities of their planes in comparison with those of the Germans.

On the other hand, in the battles on the Mediterranean and Western Fronts between Allied fighter bombers and German fighters of about equal capabilities, their outcome was contingent as much on the individual worth of the crews and planes as on numerical superiority. Here the tactical air force of the Allies was always able to fulfill its missions without any great losses. Particularly, it never did suffer such repeated losses as the strategic air force.

### Korea

The beginning of the war in Korea confirmed the lessons of World War II. After the United Nations forces were almost wiped out, it was the tactical air force that brought the enemy tanks to a halt. It took the place of the defense fire of the artillery to a degree.

"The rocket projectiles and machineguns of the *Shooting Stars* destroyed more tanks, guns, and other matériel than all other means together," declared General George E. Stratemeyer, Chief of the American Air Force, in July 1950. General Walker, Commander of the Army of the United Nations, confirmed this testimony: "Without the Far East combat air force there would not be an American left in Korea today."

In the critical phase of the retreat to Pusan it was the direct support and the continued flying over the front by the fighter bombers that forced the North Korean Army to give up its daytime operations in favor of night movements.

After the crisis had been passed, General Douglas MacArthur consented to the repeated proposals of his air staff to make greater use of the available air units for the indirect support of the front. A barricade straight across the peninsula would prevent all movements of troops and matériel southward. In a few weeks the roads which had been filled with transport columns were empty. Finally, the horse-drawn train was replaced by handcarts and then by packs.

If the American tactical air force played a decisive role in slowing down the advance of the North Koreans, and in choking off the attacks on the Pusan bridgehead, its role was no less significant in the counterattack that hurled the remnants of the Communist forces back to the Yalu River. It was the advanced guard point of the ground forces; it determined the fate of the enemy well ahead of the front; and it compelled him to abandon all of his heavy matériel and split up the enemy army into groups of partisans who scattered into the mountains and were annihilated completely during the succeeding weeks.

With the offensive of 24 November 1950 and the Chinese-Korean counterattack which followed it, the situation completely changed however. Both the direct and indirect air support proved ineffective in halting the attacker. Against an army which consisted exclusively of infantry, which was exceedingly well-camouflaged, and which stuck close to the rear guards of the United Nations Army during the long winter nights, not much could be accomplished by direct air support. Nor was the indirect support much more effective since the enemy had lowered his supply requirements to an almost unimaginable degree.

### Indochina

The turn of events in Indochina in November 1950 would not have come as a surprise if the powerlessness of the tactical air force in Tonkin in the face of an army of very similar composition had received more attention two months earlier. The same mortars which brought the Chinese-Korean Army its successes in the war of movement in November had, in September, brought about the fall of the fortified strong points on the border of Tonkin. The French High Command in Indochina was obliged to witness the powerlessness of its tactical air force which had been alerted immediately when the first projectiles landed in the strong points.

On 24 September it was stated that:

*The reports sent to the General Staff have shown that not a single gun of the Vietminh artillery has been silenced by the air force.*

Both the indirect and the direct air support failed. Systematic bombing of the supply routes was as ineffectual in preventing the movements of the Chinese supplies as in preventing the troop concentrations of the Vietminh.

### Adaptation

After the air force in Korea had recovered from its first surprise, it attempted to adapt itself to the new situation. During the counterattacks of the United Nations Army from January until May 1951 it inflicted ever-increasing losses on the Chinese-Korean forces. High-explosive bombs fitted with proximity fuzes were dropped on their targets by navigational methods with such great accuracy that both troop movements and supplies were halted even at night. Dropping almost vertically, their fragments caught even the man seeking shelter in a rapidly constructed foxhole. The same improvement of the situation occurred in Tonkin. With the help of the aviation the most violent attacks could be repulsed successfully by the fortified positions.

Again the Communist armies, lacking aviation of their own, adapted themselves to this threat from the air. War of movement was followed by war of position; fortification on the surface of the ground was followed by fortification under the ground. Massed attacks were followed by encirclements and the slow forward push of regular sieges.

After May 1951 the Chinese-Korean armies dug in a few miles north of the 38th parallel. The attacks which were conducted against the Communist lines proved

to be just as costly as they were incapable of throwing the Chinese armies back again to their jumpoff position. The taking of positions like "Punchbowl" and "Heartbreak Ridge," required weeks of fighting.

Operation *Strangle* which began at the end of August 1951 marked the return of the tactical air force to indirect support. Its failure in direct support caused it to leave the task of helping the infantry to the field and naval artillery. By means of 1,000 sorties daily, as well as a theretofore unequaled massing of planes, it attempted to achieve again its past brilliant success in the cutting of rear communications.

But all its efforts were in vain. The Chinese-Korean Command replaced, reinforced, and supplied its front troops regularly. When General Matthew B. Ridgway, after his transfer to SHAPE, drew a picture of the Communist resurgence in Korea, he wrote:

*The continuing air superiority of the United Nations on and immediately behind the front had been no more able to prevent this resurgence than had Operation* Strangle *against the communication lines far to the rear. The Communist High Command has shown its ability to move its formations without losses; it has been able to relieve its front divisions regularly and train its reserves; it has been able to put an end to the shortage of supplies occurring in 1950-51 and even restore the supply to the civilian population.*

The initial successes of the air support in the region above the improvised, fortified positions in Tonkin and Laos in Indochina, likewise did not continue. Dien Bien Phu ushered in the failure of the defense power of a tactical air force whose intervention so often had saved the defenders of the reinforced positions on the Delta or in the trenches of Na-San.

The excellent layout and camouflage of the encirclement lines caused every attempt at direct air support to fail. How should one expect a pilot to destroy a camouflaged mortar or machinegun from a height of 1,000 yards when the ground reconnaissance forces sent out around Dien Bien Phu were not able to find them in the vegetation-covered terrain.

Equally powerless was the indirect air support against the army of porters which accompanied a three to four times smaller formation of combatants. The extraordinarily difficult condition of the Indochinese jungle continually had hindered the supply of the Vietminh. At the end, however, a spiderweb of practicable roads covered the mountains in Tonkin from China to Laos; fords supplemented the bridges; new detours were being built around shell craters, so that the complete interruption of a road was prevented.

### Tactical Atomics

The employment of tactical atom bombs should present the opportunity for finding a first remedial measure.

Mr. Gordon E. Dean, president of the American Atomic Energy Commission, urgently asked Congress for increased appropriations and stated:

*We must cease associating with an atomic war, the idea of gigantic explosion by which great cities and their inhabitants are converted to rubble and ashes. . . . We are working, today, on weapons which may be used on the field of battle, on artillery shells, guided missiles, torpedos, rocket bombs for the tactical air force . . . of almost as many varieties as the conventional weapons. We shall have something for all situations, large weapons for large targets and small ones for the small.*

A new doctrine has begun to develop. The tactical employment of nuclear weapons has given secondary importance to their strategic role.

Secretary of State John Foster Dulles explained the principles of the so-called strategic "new look." The security of the

United States was no longer to be based on the strength of the local defense of the sector chosen by the enemy for his aggression, but on the atomic retaliatory power which will be immediately directed against these points which the American top command considered most suitable for this end.

The budget presented by President Eisenhower at the same time was illustrative of this new military policy. It granted the Air Force an appropriations increase; it made more funds available to the Navy for its naval aviation; the great sacrifice was to be made by the Army, whose strength was to be reduced by almost 30 percent.

Protests against the "new look" quickly began. General Ridgway had no trouble in showing that fear of the atom bomb had neither prevented the guerrilla war in Greece nor the invasion of Korea, and that it was just as incapable of stopping the advance of the Chinese in Southeast Asia. The attitude of the Army found sufficient audience with the congressional committees concerned, so that the President postponed the measures planned for the reduction of the Army.

Furthermore, a development took form during the course of 1954 which resulted in complementing the threat of strategic retaliatory measures against the enemy's great industrial and population centers with the more subordinated employment of tactical atomic weapons. It showed itself first in the repeated assurances of leading American circles, then also in those of the NATO chiefs: the tactical atom bomb and the atomic shell, they declared, belong to the normal armament of the large units; there its employment in operations must be regarded as certain.

The increase in the number of atomic artillery batteries, of the bombs for the tactical air force, and of the guided missiles with atomic charge robbed the Army leaders of their arguments. It reduced their personnel but at the same time gave incomparable firepower to those that remained.

### Limited War

In the place of massive retaliatory measures there will be a limited war. It is no longer planned—unless the adversary takes the lead—to drop bombs which destroy or burn buildings within a circle of dozens of miles and which scatter their radioactive ashes for hundreds of miles.

Instead, bombs of moderate effect whose destructive force does not extend beyond the accurately assigned targets will be used. President Eisenhower confirmed this point when he said:

*In every battle in which these weapons can be employed against purely military objectives and for purely military purposes, I see no reason for not using them in exactly the same way one would use a shell.*

The only lessons one could deduce concerning the new role of aviation equipped with nuclear weapons are those deriving from the actual explosions in Nevada and in the Pacific and from the assumed explosions in maneuvers. In the latter case, however, the same certainty of a wise proportion between conventional weapons and weapons of mass destruction as in an actual war unfortunately does not exist.

In his critique of Operation *Battle Royal* in the fall of 1954, General Sir Richard N. Gale, Commander in Chief of the British Combat Forces in Germany, did not accept the view that tactical aviation would again play the predominating role in the battle on the ground that had previously been awarded it. In this war game, although the southern force had used eight atomic shells or bombs to compensate for its numerical inferiority, in seven days it had to pull back 35 miles on its 60-mile front. The role of the infantry, the tanks, the artillery, and the classical weapons remained decisive.

Eight atomic shells to 60 miles would be 80 to 600 miles, about that required for a barrier from the North Sea to the Adriatic. In place of the shells and bombs of but a few kilotons strength which made up the majority of the nuclear weapons employed in *Battle Royal* aviation would make use, with better results, of 100- to 500-kiloton bombs. Finally, the explosions on the ground would extend their barricading effects over a period of several days or weeks, while such effects last but a few minutes when the explosion of the weapons is in the air.

### Exercise *Sagebrush*

Exercise *Sagebrush* in the fall of 1955, leads to very different conclusions. Its two phases lasted from the last days of October to the first days of December. But still more remarkable was the vast area over which the tactical air force of both parties operated. The directors of the maneuver made no secret of the fact that they were attempting to represent as accurately as possible the region of the western and central European theater of operations that was affected by air and ground operations in the tactical framework.

The situation excluded the employment of the thermonuclear bomb and its strategic destruction. On the other hand, however, all other weapons of mass destruction available to belligerents today were represented. Atomic shells, bombs, and missiles played the principal role—altogether there were 275 explosions of a force which varied between two and 40 kilotons. Chemical, biological, and radioactive weapons supplemented their effects.

Radio and radar networks, air supply by fighter bombers taking off from distant airfields, the landing of airborne units by helicopters back of the fronts, the employment of infrared devices for the observation of night movements, the transmission of air pictures by television apparatus to the combat post of the divisional general staff—all these technical means which still are barely in their experimental stage in the other Atlantic nations, gave the maneuver an ultramodern character.

The most pleasing lesson from Exercise *Sagebrush* according to General Otto P. Weyland, commander of the tactical air combat forces and director of the maneuver, was the renewal of the importance of tactical aviation. The combatant on the ground will be less easily able to protect himself against 40-kiloton bombs than against napalm from which he has finally learned to escape. The atomic weapons generously allotted to both parties in this war game, have given rise to new problems.

Each one endeavored to obtain air supremacy—according to Douhet's rule—by destroying his adversary's aircraft "at their source." The bomb of 40-kiloton force which was tested in the spring of 1955 at the Nevada testing grounds showed itself well suited for the destruction of planes scattered here and there over the ground. It both interrupts the concrete runways with explosion craters of 300 to 400 yards diameter, and, in addition, blocks passage over adjoining areas with radioactive material.

On both sides, the takeoff fields in the vicinity of the front had to be evacuated in a few days' time. With the help of refueling while in flight, substitute areas up to 600 or 900 miles to the rear were used. The fighter bombers and their 40-kiloton bombs continued their destruction in the depths of the rear areas however, and not only reduced the adversary's aviation and its ground installations, but the entire region over which they were active was affected seriously.

The situation of the ground forces was no better. According to the view of the most qualified American commentators, Exercise *Sagebrush* spelled the most complete failure on the part of the ground fighter to adapt himself to the nuclear

threat. Neither the large armored nor the other units were able to execute their movements in the face of the assumed explosion and surface effects of bombs, and chemical, biological, and radioactive combat means.

The season of the year, as well as the character of the operational region—the greater part of which was covered with marshes and woods—rendered the problem still more difficult since, as a result, it was usually impossible for even track vehicles to leave established routes. The long armored columns which could be detected at a great distance after night by the infrared radiations of their 1,000-horsepower motors, and the thousands of supply vehicles which accompanied them would have been blocked in the midst of burning woods as the result of the same 60 atom bombs dropped on the ground forces and the chemical warfare agents which were widely employed over the length of the few practicable routes.

### Thermonuclear Weapons

Even though the thermonuclear tactical bomb has not as yet been included in such exercises, test explosions and the official statements concerning their effects leave no doubts concerning the change they will give rise to and which will be comparable to that resulting from the employment of the tactical atomic weapon.

The casualties among the crew of the Japanese steamer *Fukuyu Maru* during the test explosion of 1 March 1954 do not exactly lighten the task of the supporters of the thermonuclear bomb. In his declarations before a Senate Committee, General James M. Gavin, Director of the Research and Development Section of the United States Army, estimated the effects of a thermonuclear attack on the USSR at a few hundred million lives, the greater part of which would occur in allied or neutral countries.

Admiral Lewis L. Strauss thereupon quickly entered the lists with a reply. Going over a long list of thermonuclear explosions in the Pacific, he announced important improvements which for the first time had no reference to increase of explosion effects with corresponding increase in human casualties and material destruction.

The innovation had reference, rather, to a diminution of the dangers from the fallout of radioactive residues. The effect of the bomb could, in the future, be *localized* accurately. The fallout which would produce deadly results over hundreds of miles would be done away with. The increase in atmospheric radioactivity which is especially attacked by the geneticists would be greatly reduced. According to the journalists who participated in the press conference without, however, completely sharing Admiral Strauss' optimistic views, this bomb has by no means lost any of its destructive power, yet has become, nevertheless, "clean and hygienic."

If the thermonuclear explosive material is really capable of entering into competition with the atomic explosive material under the various forms of tactical weapons (bombs, shells of various calibers, and guided missiles) employed in the American Army, the consequences are easy to determine.

The words chosen by Admiral Strauss do not enable us to obtain an accurate idea of the explosion effects. He asserted that the aim was a reduction of the radioactive products of disintegration and that outstanding results were obtained "inclusively of the maximum of effects in the target area combined with the minimum of dangerous scattering of radioactive disintegration products."

Several factors would be contributory, here, but they are of secondary importance when the explosion takes place at a great height. A very important factor which has not been mentioned is clouds which may partially cover the target area.

If the height of the explosion is two or three times the height of the clouds, the heat radiation will reach the ground only in gaps close to the vertical line downward from the explosion, while it will be almost completely blocked in every other place. In this manner, destructions by strong but locally limited conflagrations can be achieved.

Explosions in very rarefied strata of the atmosphere almost are completely free of the shock wave which is dependent on atmospheric density. This corresponds to the classical experiment of nontransmission of sound through a vacuum. For those who are unwilling to omit the effects of the pressure wave, explosions at a low altitude in the layers of atmosphere of greater density are a "must."

Even though explosions at low altitude retain their heat effect for considerable distance, this effect, nevertheless, disappears farther out. In weather which the scientists characterize as "unusually clear," the lower atmosphere absorbs but 25 percent of the radiated heat at two miles—the distance at which great devastation by fire was still found at Hiroshima. At six miles it absorbs 63 percent and at 30 miles more than 99 percent. From this distance the observer would be able to follow the development of either the nuclear or thermonuclear "fireball" with the same ease with which he observes the sun on the horizon.

In the case of an explosion at a great height, this absorption is almost entirely lacking. With identical atmospheric composition, absorption is proportional to distance. In addition to this, it is almost entirely dependent on the atmosphere's content of water vapor. While three-fourths of the weight of the atmosphere is below 10,000 yards, three-fourths of its water content is below 4,000 and half of it below 2,000 yards. In the case of a bomb exploding at 20,000 or 30,000 yards, absorption over the greatest part of the distance the radiation travels in reaching the ground will be insignificant.

The thermonuclear explosion at a very great height will alter ground operations still more fundamentally. The strength of the heat radiation and of the radioactive radiation against ground targets in the case of direct and indirect air support will halt every form of surface activity. The serving of a battery in position during such an explosion is just as unthinkable as the utilization of the transportation required for its supply.

The zone of several hundred miles depth on both sides of a front, over which the operations of the indirect air support will extend, will be devastated from the first day on by the fires which will be ignited from great heights by the first explosions. When the fire finds nothing more to burn, subsequent explosions will produce their effects against transport and even armored vehicles by indirect radiations.

During the course of the indirect air support the explosion of the purely thermonuclear bombs at the medium heights of 1,000 to 3,000 meters will add their several hundredfold repeated effects to the deadly dosage of neutron radiation and the general effects of the thermonuclear explosions at great height.

The explosion directed through an open space in the clouds is not the only method of obtaining strong but locally limited radiations which prevent all ground attack operations. In the case of a completely clouded sky, an explosion a few dozen yards inside the clouds would give rise to the same limiting effects directly beneath the explosion. The constant threat of a thermonuclear explosion at medium or great heights renders the transfer of positions and traffic underground imperative.

### Tactical Air Matériel

Since the war in Korea in which planes like the *Thunderjet* and the fighter bomber variant of the *Sabre* were able to hold their

own without too great risk against the *MiG-15*, antiaircraft defense planning has passed through three successive stages: the stage of the remote-controlled missile, that of atomic antiaircraft defense, and that of thermonuclear antiaircraft defense. The periods of time which elapse between the designing of matériel and its adoption by the units have not permitted tactical aviation to keep pace with the rapid and simultaneous development of the weapons which its adversary would employ against it.

Defense by means of the ground-air rocket has made the greatest progress. One can concede that the employment of airplanes with speeds of from Mach 2 to Mach 3, of which the *F-104 Starfighter* is first to have been put to use, is the right answer to the advent of the ground-air rocket of the *Nike* type. The speed of the first rockets is, as a matter of fact, not great enough for them to constitute a serious threat to planes operating at a speed of Mach 2 or 3. When the rocket is discovered by the plane, it can only get into the proximity of the plane at inferior speed. The fighter bomber with speeds of from Mach 2 to Mach 3 can, therefore, make use of its thermonuclear bombs under acceptable conditions as regards its own security.

Defense against atomic antiaircraft action is much less assured. Even though the explosions are of approximately 20 kilotons, the carrier rockets and especially the artillery shells—the 28-cm guns are well suited for this mission—are able to deliver the charge to such a proximity that the destruction of the plane is certain. But the improvements in the atomic explosive materials, with which calibers of less than 100-mm can be equipped today, make it possible to far exceed the 14 kilotons of the first atomic shells in a caliber of 280-mm. The ballistic characteristics of the large calibers need only suffice for delivering an atomic charge within its effective range of one or two miles from the target. This is sufficient to destroy a bomber without producing any particular effects on the surface of the ground 10 to 15 miles below.

The problem of defense against thermonuclear antiaircraft defense, which operates by means of explosions at a height of 15 to 18 miles has not been solved. This defense seems to be especially difficult in the case of piloted planes because the force of the thermonuclear explosion is so great that everything within a radius of six to 12 miles must be considered as destroyed.

Rather, in the present race between the intercontinental ballistic missile and the similar missile of antiaircraft defense, the first—the offensive missile—will win the race.

At the velocities with which the long-range ballistic missiles will penetrate into the atmosphere, the only imaginable encounter with the defense missile must of necessity occur at a very great height. Due to the rarefied atmosphere, pressure effects at this height will be insignificant. The heat effect would be very great against an object at rest but not against a target moving at high speed and remaining in the danger zone only a fraction of a second, while the heat radiation continues for several seconds. We shall one day see the offensive missile or, at least, its explosive charge, pass through the fireball of the defense missile.

The effects of the radioactive radiations unfortunately prohibit any air force from sending its pilots into the interior of such material. No conceivable thickness of protective material could ensure their protection there.

The development of defense weapons with effects many times greater—missiles with several hundred pounds of chemical explosive, atomic missiles of a few kilotons, and thermonuclear missiles of a few megatons—bans the piloted airplane from

great and medium heights in favor of the pilotless missile. The age of the tactical airplane, which flew over the lines of 10,000-meters height and executed its attacks in dives at the target to again disappear upward, has, in a double sense, developed recessively.

The weapons which aviation today has at its disposal relieve it of the necessity for accuracy in its attack on the target. *The same weapons in the the hands of the defense prevent it from attacking at all.*

In the future allocation of missions between the airplane and the missile, the great heights, the great speeds, and the great ranges belong to the ballistic missile which alone is capable of exploiting them. The piloted plane will have to withdraw to flights close to the ground where it does not need to fear the atomic or thermonuclear missile any more than the ordinary missile, and where it largely will escape detection by search devices and the fire of small-caliber antiaircraft artillery.

Not even the stratofortresses will be able to assume the last position of the superfortresses which were assigned tactical missions in the war in Korea. But planes which hedgehop at 400 miles an hour are fortunately there to relieve them.

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# Political Economy in War

**Digested by the MILITARY REVIEW from an article by Lieutenant R. A. Hinchy in "An Cosantóir" (Ireland) April 1957.**

POLITICAL economy has been defined as a study of man's actions in the ordinary business of life—how he gets his income and how he spends it. Alternately, it is the study of the "Wealth of Nations" or how a nation acquires and spends its income. From this, political economy in war may be defined as a study of how wealth or resources are acquired for war and how they are expended.

Before World War I political economy in war, as a study, was unknown. War needs were considered subject to the ordinary laws of supply and demand. The cost was minimized as far as possible by keeping the wars short and by making the vanquished pay.

However, by 1915 suspension of the ordinary economic forces was necessary to ensure sufficient resources for war, and from this first interference with free economic processes, more and more controls grew.

The year 1918 saw all belligerents with more or less organized machines to ensure adequate and speedy mobilization of national resources for war. The size and complexity of these controls and the importance of economic forces in achieving victory led to the realization that a new branch of economic science—political economy in war—had arisen. Steps were then taken to formulate the theory of this new growth.

## The Object

The object of political economy in war is to concentrate as much as possible of the real resources of the nation on direct war purposes.

The real resources, or wealth, of a country consist of the mental and manual powers of its people, its land and minerals, its equipment—railways and factories—and its right to payment from foreigners. These resources, which are the same in peace as in war, are used in successive years to produce the national product or national income. However, in war the overriding concern is to make available as much as possible for immediate utilization.

This may be done by increasing produc-

tion, by reducing consumption of items not directly used in war, by reducing investment in capital equipment, and by using up capital. By a combination of all these means the national product may be increased considerably in the short run.

Having thus increased the national product the next task of the government is to ensure that an adequate portion is available for war purposes. It might seem that this could be best arranged by a form of siege economy in which the government would control everybody and everything, and allot according to necessity. In practice this has not been found feasible because the motive of monetary gain is still paramount as an incentive to effort, even during a great war, although it is not always entirely adequate. Nevertheless, the government has to pay in cash for the resources it needs and every sector of the war effort acquires a monetary value.

### Finding Money

In a modern state money is found by means of taxes, loans, and credit creation.

Taxes leave no undesirable aftermath of debt or interest repayment. On this account they are preferable to loans. Sufficient money, however, to meet the total cost of a modern war could not be raised by taxation alone. If it were attempted, it would involve an inordinately high rate of tax with consequent loss both of morale and of the incentive to work. From the point of controlling inflation it is desirable that taxation be kept as high as possible during wartime.

Loans leave a large burden of repayment on future generations, but do not, at the time, cause as much hardship or loss of morale as steep taxation. National loans may be either voluntary or obligatory; if in the latter category they are, of course, scarcely distinguishable from taxes.

A voluntary loan is liable to fail and if this happens not only is the government embarrassed by a shortage of money, but confidence in the nation is shaken—a serious affair in wartime. The failure of a loan may be guarded against by offering high interest rates, but apart from economic objections to this, the thought that some men are making money out of the war while others give their lives is so repugnant that it would cause grave social unrest.

Credit creation has the advantage that it is quick. There is no timelag such as occurs between the levying of taxes and their collection. This is important when money has to be readily available, as is the case frequently in wartime. Credit creation very often is necessary to bridge the inevitable gap between expenditure and receipts from taxes and loans. Its great disadvantage is that an inflationary spiral is started at once.

### Inflation

Inflation occurs when too much money seeks to purchase too few goods. Government seeks to increase war production by the use of monetary incentives. At the same time it reduces the items on which this new money can be spent, in pursuance of its policy of reducing civilian production. Consequently, the cost of the remaining civilian goods rises and this increase generates a demand for higher wages and profits. If the demand is met, this additional money pushes the cost of the consumer goods higher again. To allow this spiral to continue uncontrolled will result in a loss of confidence in the currency. The normal system of exchange may break down and economic chaos, followed inevitably by military defeat, will result.

Inflation may be controlled by increasing the amount of consumer goods. This is possible only in an economy which has solved the problem of adequate war production successfully.

A commoner solution is to limit the

amount of new money by wage and profit control and steep taxes, to limit outlets for spending by comprehensive rationing, and to keep living costs low by price control.

All these measures interfere with individual liberty and tend to blunt monetary incentives, thereby lowering morale and production. They also require huge administrative machines to operate them, the personnel and resources for which must be subtracted from the direct war effort. Nevertheless, not only is some inflation inevitable in a war economy, but steps must be taken rigidly to control it.

### Controls

Finance has become a secondary consideration in a modern war economy and is never allowed to stand in the way of mobilizing *real* resources. Normally, the government directly controls all scarce and important resources and allots them on the basis of a national balance sheet of availability and need. It thus ensures for itself an adequate supply of everything it needs and fair distribution of the balance.

This control generally is achieved in three ways. The government makes itself the sole dealer for stocks of annually produced goods. It buys the entire stock at a fixed price—bearing in mind that if it fixes it too low, the supply will tend to dry up—takes its quota, and allots the remainder to the public. In the case of productive instruments such as factories or railways, depending on their importance to the war effort, the government commandeers as much or as little of the organization as it thinks necessary. Lastly, productive agents are mobilized by conscription and direction of labor.

As with the control of inflation, all these measures require great administrative machines. There must be commodity purchasing agencies, coordinating committees for related industries, transport boards, and innumerable other kindred organizations.

Labor control alone is an immense and delicate task in a war economy.

The degree of interference and frustration involved in all this is well-known, but it is an essential part of political economy in war. If the disadvantages are not to result in impairment of the will for victory, the most skillful national leadership is necessary.

### Great Britain

The economy of each of the principal belligerents in World War II had features peculiar to itself. That of Great Britain was the most tightly mobilized and highly organized. It was obvious that the numerical inferiority of England as compared to Germany could only be compensated for by taking full advantage of the international division of labor. This meant mobilizing a much larger proportion of Great Britain's population in the immediate war sector of the economy (forces and munitions) while importing food and raw materials. This would not have been possible without the money to pay for imports and without the command of the seas over which they had to be transported. These requirements were summarized as "cash and carry."

There were early difficulties over "cash" but these were solved by American lend-lease. After many difficulties due to enemy action, lack of shipping, and poor organization, "carry" finally was put on a sound footing by September 1943.

The problem of manpower then came to the fore. The size of the army had been placed (1942) at two million and with this as a reference point all other demands were fixed and the immense task of finding the available hands and putting them to work commenced. Immense effort and ingenuity went into this, for it was realized that Great Britain's capacity for expansion was limited and that the scale of the war effort depended largely on efficient organization. Nevertheless, by the

end of 1943 labor was not available for further expansion and existing service and munition establishments barely could be maintained. Fortunately, for Great Britain, the peak of her war economy coincided with the military peak of the war (1944).

Inflation was controlled successfully although supplies of consumer goods were very scarce. The steepest taxation of all the belligerents and a high level of saving helped in this. The political success of the government in holding wages relatively stable and a comprehensive rationing and price-control system also were important. Inflationary pressure was eased by reducing expenditure on capital repairs and replacements and by selling foreign assets.

### The United States

The concept of a planned economy was alien to the United States but the experiences of other countries had established its necessity. By 1941 the principle of planning was accepted. However, American production and resources in men and materials were so vast that questions of execution rather than principles were always to the fore. Nevertheless, the enormous targets set for American production, "the arsenal of democracy," were not always reached. This was due generally to bad organization and control.

As in Great Britain, a limit to expansion finally was set by putting the strength of the Armed Forces at 15 million. They never actually reached this figure, but sufficient manpower was forthcoming to satisfy all needs without resort to conscription as severe as in Germany or Great Britain.

The control of inflation was helped by the fact that production and consumption of consumer goods actually rose between 1939 and 1945. Controls on prices and wages were available and used as necessary. In conclusion, consideration of the American war economy inevitably is overshadowed by the amazing achievements of American producers.

### Germany

Germany was economically well-organized for war. Industry was integrated closely on a territorial and functional basis and there was complete government control of banking, prices, and wages. This was partly to combat the disastrous economic situation after World War I and partly to provide for Nazi economic expansion. By 1940 the aggregate potential resources of Hitler's Europe were large enough to ensure against total defeat.

These resources were never fully used because Hitler pinned his faith in a short war and neglected to arm in depth. After 1942 it was obvious that this gamble had failed, but by now resources were available only for projects which would give an immediate return and any improvement in production could be achieved only by organization. The weak spot in the German war economy was the shortage of certain key raw materials.

There was a labor shortage in Germany even before the war and the extra demands of war were largely met by increasing the number of foreign workers in the Reich to seven million. War contracts also were given to occupied countries. By these means Germany avoided as stringent a conscription as Great Britain, particularly with regard to women. Labor never became an absolute limiting factor on the German war economy, which finally was prevented from reaching full productivity by the breakdown of the transport system under enemy air attack and by the shortage of key raw materials.

The German war effort was largely financed by credit creation. However, the Germans had learned well the lesson of 1918 and inflation was kept under control by a strict control of wages, prices, and rationing of consumer goods. The size of the inflationary gap also was reduced by

large levies of goods and services from occupied countries and by the low wages and living conditions of foreign workers.

### USSR

The data is not available—and probably never will be—for a thorough study of the Soviet war economy. A centralized state economic planning system had been set up in the USSR in 1929 and continued to operate with changes in detail throughout the war. However, the main problem was not organization and control, but actual physical production which was never at a level to sustain a modern war and was further reduced by enemy action.

This problem was solved in three ways: by lend-lease supplies from Great Britain and the United States, simplified Russian production and equipment, and the amazing hardihood of the Russian people which allowed civilian standards to be depressed to an unprecedented degree with a resultant increase in war production. Nevertheless, supply remained a major Soviet difficulty until the end of the war and military operations often were held up for lack of essential munitions.

As far as is known the Soviet manpower problem was not one of quantity but of quality, of finding sufficient skilled technicians. The cost of the war to the USSR in terms of real resources was enormous. As, contrary to some opinion, profit and money incentives play a considerable part in the Russian economy, a serious inflation occurred in 1944. Little could be or was done about this except wait for the inevitable improvement brought about by the end of the war. The discipline of a police state and the general low living standards ensured a minimum of harm to the war effort.

### Conclusion

The division between the military and civil, or essential and nonessential, sectors of the economy has become blurred. Many seemingly useless industries are vital to well-being and morale in a long war. Too sharp a reduction of these will do more harm than good.

International economic rationalization and cooperation reached a new high state of development by the end of World War II. This, in turn, led to the growth of supranational administration in the military and political sphere.

The daily lives of millions were reduced to a pattern, shaped by deliberate planning to achieve certain ends. The rights of the individual were obliterated more and more.

Finally, traditional limits to human activity were removed through the abolition of financial and other obstacles to the full employment of labor, machinery, and human ingenuity.

The state in its modern form began to emerge at the end of World War II. A managed economy became universal in most leading countries; there was a trend away from old national sovereignties toward new supranational groupings; and the population tended to offer less resistance to officialdom. Such an organization has great potentialities for good or evil. It should be recognized that the stimulus which war gave to political economy has contributed chiefly to the emergence of the modern state.

History shows that the possession of the most efficient economic machine is no guarantee of victory in war. The Roman Empire was by far the most integrated and organized economic system of its day. It was not economic necessity which halted the German armies outside Dunkerque, nor was it the possession of greater economic resources which prompted the British to stand alone in 1940. Provided the economic disparity is not too great, courage, leadership, and military technique are still decisive factors in any conflict.

# BOOKS OF INTEREST TO THE MILITARY READER

**THE BATTLE OF CASSINO By Fred Majdalany. 309 Pages. Houghton Mifflin Co., Boston, Mass. $4.00.**

BY LT COL JEAN P. MESLET, *French Army*

Although the title of the book is more restrictive, it actually covers the essentials of the Italian Campaign of World War II, or as the author says: "The series of battles which opened in the cold wet fury of the Abruzzi winter and ended in the scorching noon of the Roman summer."

The long prologue of the work includes the numerous considerations involved in the selection of a new theater of operations: general policy of the conduct of war, geography, shipping, and logistics. Also brought out are divergent points of view on the Italian Campaign in what the author calls "Mr. Churchill's personal issue" as opposed to the American concept of a "sideshow."

The author discusses the four battles of which Cassino, the "hard core of the Gustav line," is the focal point: first, as an objective, then as a target, and, finally, as a base of departure. The first battle is described as a "hastily undertaken assault to support the landing in Anzio," with the second designed to save the Anzio beachhead from disaster. The third battle, described as "the first obliteration bombing in history of a small infantry objective," is actually the battle of the Cassino monastery. The fourth and last battle involves the advance from Cassino to Rome and final victory, in which General Clark holds a press conference on the Capitoline Hill and on the morning of the following day, the Allies land in Normandy.

With 12 pages of illustrations and eight maps, the book is an interesting, lucid, and very worthwhile contribution to military history.

**HOLOCAUST AT SEA. The Drama of the *Scharnhorst*. By Corvette-Captain Fritz-Otto Busch. Translated from the German by Eleanor Brockett and Anton Ehrenzweig. 182 Pages. Rinehart & Co., Inc., New York. $3.50.**

BY LT COL HOWARD L. FELCHLIN, *Inf*

The saga of the famed German battleship *Scharnhorst* was another dramatic although futile attempt of the German High Command to wrest control of the North Atlantic from the British Navy and destroy the vital convoys en route to Murmansk during the critical days of 1943. With pardonable pride, but in painstaking detail, the author recounts the life of this gallant battleship that caused considerable damage to Allied merchant and military shipping before being destroyed by a powerful British naval force under the brilliant leadership of Admiral Sir Bruce Fraser.

In retrospect one might rightly conclude that on her last battle mission, the *Scharnhorst* was assigned an impossible task that could only lead to her inevitable doom.

This book will be of interest primarily to the naval officer as it represents a dramatic episode in the annals of World War II naval warfare that will always be a memorable tribute to friend or foe alike.

**AMERICAN MILITARY POLICY. By Edgar S. Furniss, Jr. 494 Pages. Rinehart & Co., Inc., New York. $5.00.**

BY LT COL IRVING HEYMONT, *Inf*

This book is a study of the nature of the military component in American statecraft. Specifically covered is how the military component has been envisaged by policymakers and how it may be used in various geographical areas to balance Communist capabilities and Communist activity. Rightfully, Professor Furniss does not arrive at any definite conclusions. Until about 1948, and the initiation of the Truman Doctrine of containment, there were no United States experiences or traditions dealing with peacetime implementation of military techniques as part of our foreign policy. Since the end of World War II our policy has been one of improvisation to meet the recurring crises of a world neither at war nor at peace. In effect, this book deals with what is in reality an undefinable abstraction—the military component of current American foreign policy. The difficulty of such a study is immense. Statecraft is the intermingling of many different policies which are closely intertwined and are difficult to examine—even analytically. Any examination of military policy must study the entire field of international policy which military policy supports and in turn is an essential part thereof.

The method employed by Professor Furniss is the assembly of selected articles covering the fields of political geography and areas of commitment of American military power, role of the military in foreign policymaking, evolution of our military strategic doctrines, problems of continental defense, the use of our military power for pacification of weak allies and defense of uncommitted weak states, pooling of military power in international security organizations, and our concepts of limited warfare, graduated deterrence, and massive retaliation.

The articles selected are generally excellent although some are irrelevant or out of date in view of the 1957 publication date.

Despite these faults this book is an excellent study in a relatively new field and will be of interest to those desiring an understanding and introduction to the functions of the military in our cold war foreign policy.

**THE PRICE OF POWER. America Since 1945. By Herbert Agar. 199 Pages. The University of Chicago Press, Chicago, Ill. $3.50.**

BY MAJ ARTHUR B. WHITE, *Arty*

This is a powerful analysis of the events since 1945 which have forced the United States into her world leadership role. Mr. Agar's presentation of important events and the persons who induced or reacted to these events is forceful and searching, at times blunt, but thought-provoking, nonetheless.

He traces our "dawning maturity" as a political power throughout the seething period of the A-bomb, Hiss, Fuchs, McCarthy, Truman, MacArthur, and Eisenhower up to our present position as disputed master of an all but hysterical world. He pinpoints errors and the men who made or condoned them. In the words of editor Boorstin, "Americans who see themselves in Mr. Agar's history will not find a flattering image; but, if his image is accurate, they dare not shut their eyes."

I highly recommend this book to the soldier and civilian alike, to anyone, in fact, who likes a concise, meaty history unlarded with a hodgepodge of prejudice, hindsight and political ax grinding. It belongs on the professional soldier's "must list."

**CHINA'S CHANGING MAP. By Theodore Shabad. 295 Pages. Frederick A. Praeger, Inc., New York. $7.50.**

**THE ART OF SPYING. By Ronald Seth. 183 Pages. The Philosophical Library, Inc., New York. $6.00.**

BY LT COL HAROLD E. BEATY, *CE*

Perhaps the intrigue of spying stimulates the imagination and interest more than any other clandestine activity. The person who plays this international game is well aware of the severe penalties should he be discovered. Yet the knowledge of the consequences does not deter those who seek to pursue this profession. A spy requires skill in diplomacy, adeptness in deception, indifference to friendship, and a knowledge of human psychology.

What makes a person become a spy? What is his personality and his background? Who is he? How does he work? These questions are discussed very briefly by Mr. Seth. Apparently, the methods, patterns of behaviors, and motives for spying are as numerous and divergent as the people who engage in this activity.

To illustrate some of the aspects of spying, Mr. Seth recounts five stories of modern spies: Alexander Foote, Englishman, the inconspicuous spy; Richard Sorge, German, the exhibitionist spy; Trebitsch Lincoln, Englishman of Hungarian birth and ancestry, the international spy; Christine Granville, Polish ancestry, the unwanted heroine; and Anne-Marie Walters, English and French ancestry, the courier. In each case the author has described the character and methods of operations of the person.

The author was a spy during World War II and has an intimate knowledge of the subject. The book treats the subject very briefly in a most interesting and readable manner, yet it leaves the reader with the desire to know more of the fascinating secrets of this profession.

**NACH STALINGRAD—48 KILOMETER! By Horst Scheibert. 157 Pages. Kurt Vowinckel Verlag, Heidelberg, Germany. $2.35.**

**DEBATES WITH HISTORIANS. By Pieter Geyl. 241 Pages. The Philosophical Library, Inc., New York. $7.50.**

BY COL HAROLD F. HARDING, *USAR*

This is an American edition of a Dutch historian's 13 essays previously printed in other places. Five of the essays were delivered as lectures at Smith College and have appeared in a 1952 volume of Smith College *Studies in History.*

For the officer with a sense of the importance of the military past the volume is a rich treasure. The following titles are especially rewarding "Michelet and the History of the French Revolution," "Toynbee's Systems of Civilization," "Latter-Day Napoleon Worship," and "The American Civil War and the Problems of Inevitability."

The last essay is indebted to the works of the late Professor J. G. Randall, the famous Lincoln scholar of the University of Illinois, and especially his volumes on *Lincoln the President.* But Professor Geyl adds his own interpretations and draws comparisons between Lincoln and the Abolitionists and William the Silent and the Calvinists.

A central theme of the book is the noninfallibility of historians or, put another way, the difficulties and impossibilities of their trade. The author argues that the "category of the *imponderabilia,* passion and emotion, conviction, prejudice, misunderstanding, have their organic function" in the sequence of cause and effect "of which the human mind will never have complete command."

For the reader who has doubts about the "defeatism" which Professor Toynbee continually expresses for Western civilization, Geyl's three essays on Toynbee are the best sources for rebuttal. Whoever takes the trouble to read them carefully will learn that the West may not decline after all. In these days of doom this is a refreshing outlook indeed.

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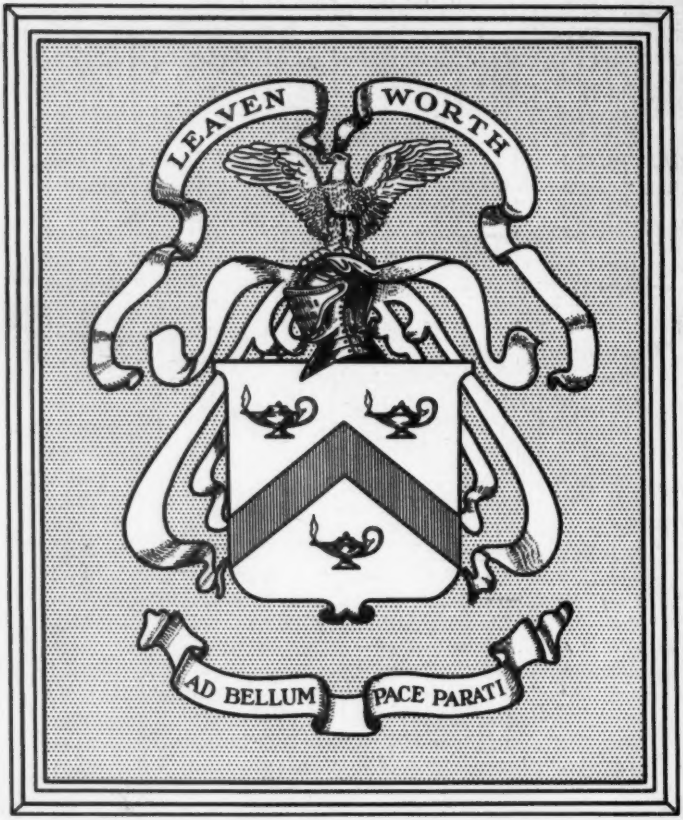


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